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ADDRESS.

THE NUCLEINS AND NUCLEIN THERAPY.

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Some recent investigations indicate that a knowledge of the nucleins is likely to be of service, as well as of interest, to the practitioner. These studies have already thrown some light upon certain physiologic problems and have enabled us to interpret more correctly some pathologic conditions. Moreover, some of the nucleins promise to be of value therapeutically. These facts make it desirable for us to familiarize ourselves, as far as possible, with these substances. I have therefore decided to discuss the nucleins in this address.

Physiologically, nucleins may be said to form the chief chemical constituents of the living parts of cells. Speaking broadly, we may say that the nuclein is that constituent of the cell by virtue of which this histologic unit grows, develops and reproduces itself. It is the function of the nuclein of the cell to utilize the pabulum within its reach. It must be evident that those tissues most abounding in cellular elements contain relatively the largest amounts of nuclein. It must also be seen that it is by virtue of their nuclein that the cells of various organs and organisms possess and manifest their individual peculiarities. We should therefore expect to find that the nuclein of the yeast cell is not identical with that of the bacillus tuberculosis, and that the nuclein of the spleen differs from that of the thyroid gland. The number of kinds of nuclein is limited only by the varieties of cells. Nuclein is the chemical basis of that part of the cell designated by the histologist as the nucleus, sometimes called chromatin on account of the readiness with which it absorbs and holds coloring agents. It is the nuclein of the bacterium which takes up and retains the stains, and it is on account of this fact, that the nuclein of the bacillus tuberculosis differs from that of other bacilli, that we are able to distinguish the former from the latter by its tinctorial properties. Differences in reaction with staining reagents, so plainly seen under the microscope, are only outward manifestations of less apparent and more important differences in chemical composition.

Chemically, the nucleins are complex, proteid bodies, characterized especially by the large amount of phosphorus which they contain. The phosphorus exists in the form of nucleinic acid, which is combined with a highly complex basic substance. So far as we know at present, the nucleinic acid of all nucleins is the same, yet the basic part differs in the various nucleins. This basic substance yields, as decomposition products, one or more of the so-called xanthin bodies; adenin, guanin, sarkin and xanthin. Some nucleins yield only adenin, and these may be designated as adenyl nucleinic acids. Those which furnish xanthin most abundantly may be called xanthyl nucleinic acids. Generally speaking, the nucleins are insoluble in dilute acids and soluble in dilute alkalies. They resist peptic digestion and in this way may be separated from most other proteid bodies.

Certain substances which are histologically and functionally nucleins do not yield any xanthin base as a decomposition product. These are now called paranucleins. Some of these are the antecedents of true nucleins. Thus the yolk of the egg contains a paranuclein, which may be isolated by removing the accompanying proteids by peptic digestion. This substance does not yield any xanthin base, but during the process of incubation it develops into a true nuclein.

Some nucleins are combined with albumens, forming compounds known as nucleo-albumens. When one of these bodies is submitted to peptic digestion, the albumen is converted into a peptone and the nuclein forms an insoluble precipitate. The casein of milk is a nucleo-albumen, the albumen of which is peptonized by gastric digestion.

The literature on this subject is not very extensive and a brief epitome of it at this time may be of some interest. Braconnot (1831), Quevene (1838), Schlossberger (1844), Mitscherlich (1845) and Bechamp (1865), all studied substances which we now know belonged to the nucleins. Chemically, their work was fairly accurate as far as it went, but no physiologic importance was attached to this substance thus early in their study, and as a consequence even those facts which were discovered, could not be properly interpreted.

Miescher was the first to study the nucleins with a fair appreciation of their importance and it was he who named them. The corpuscles from pus were obtained by the addition of dilute solution of sodium sulphate, subsidence and decantation. Then they were digested with pepsin and hydrochloric acid so long as peptones were formed. This left the nuclei of the cells. These were found to be rich in phosphorus and soluble in dilute alkalies. From the alkalin solution the substance is precipitated by dilute acids.

Hoppe-Seyler prepared nucleins from yeast; Lubavin, from casein; Plösz, from the nuclei of the blood corpuscles of birds; and Miescher from the yolks of eggs.

In 1874, Miescher made his most important contribution to the knowledge of nucleins. The material with which he worked consisted of the spermatozoa of salmon. The cells were best separated by feebly acidifying the spermatic fluid with acetic acid.

A small amount of albumen was carried down at the same time, but the quantity was so small that it did not interfere with the microscopic examination of the cells. In the fresh state, the spermatozoa were found to be very resistant to chemical agents. Strange to say, however, dilute solutions (10 to 15 per cent.) of common salt were found to be more destructive to them than boiling alkali or concentrated hydrochloric acid. Microscopically it could be seen that salt solutions cause the thick membrane of the head of the spermatozoön to first swell and then become invisible. The middle portion and the tail remain unchanged and indeed are less affected than by water. These parts are soluble in dilute hydrochloric acid (0.1 per cent.) and consist of an albuminous material.

The removal of fat from the spermatozoa is best accomplished with warm alcohol. Lecithin and cholesterin are removed with the fat. The greater part of the residue, insoluble in hot alcohol, consists of an organic base very rich in nitrogen, combined with an acid-like body rich in phosphorus. This compound is nuclein. The organic base is the substance which yields the xanthin bases, and the acid-like body is now known as nucleinic acid. Miescher called the complex, organic basic substance protamin. The readiness with which protamin may be split up into xanthin bases probably depends upon the period in their development which the spermatozoa have reached. Miescher found protamin a fairly stable body and obtained it in the form of a chlorid. The head of the spermatozoön is practically free from albumen and consists of nuclein with smaller quantities of lecithin, cholesterin and fat.

The wonderful lability of the nuclein molecule and its power of recuperating itself after being partially decomposed, are illustrated by the following experiment reported by Miescher: Well washed sperm, free from fat, is placed in dilute salt solution. Jelly-like lumps are formed and float in a clear fluid. The fluid portion contains protamin chlorid, but no nucleinic acid. The salt solution has partially decomposed the nuclein. On the addition of successive portions of common salt, more and more of the protamin passes into solution. However, the amount passing into solution remains always a fraction of the whole. Now, if the mixture be poured into a large volume of water, the jelly-like lumps disappear, an opaque network forms and all the protamin disappears from solution. A regeneration of the nuclein takes place.

Miescher further shows that certain organic and inorganic bases may be placed within or drawn from the nuclein molecule without modifying visibly the character of the substance. However, while there is no visible change, the nature of the nuclein may be in fact markedly altered. Each new combination is a body *sui generis*, possessing its own distinctive affinities and probably its own peculiar molecular arrangement. We have seen how an apparently indifferent substance, like common salt, may markedly alter the composition of nuclein. One may say that every change in the salt content, in the concentration and in the alkalinity of the fluid surrounding the tissue forming cell, however resistant the cell itself may appear, produces chemical changes which may be of the most vital consequence. With these facts before us, we can no longer be surprised when the pathologist fails to find, either macroscopically or microscopically, lesions commensurate with the symptoms observed during life.

Miescher failed to find any protamin in the sperm of the carp, frog or bull. Piccard found guanin and sarkin along with protamin in the sperm of salmon. Von Jaksch separated nuclein from the brain, and later this was done by Geohegan.

In 1879, Kossel published his first paper on nuclein, and since then he has made repeated and most valuable contributions, especially with reference to the derivation of the xanthin bases from the nucleins.

In 1889, Altmann prepared nucleinic acid from yeast, thymus, yolk of egg and salmon sperm. Impure solutions of nuclein in dilute alkali are rendered feebly acid with acetic acid. This throws down albuminous bodies which are removed by filtration. The filtrate is treated with hydrochloric acid and alcohol. The precipitate which now forms is nucleinic or nucleic acid, which is washed with alcohol and purified. Nucleinic acid contains about 9.4 per cent. of phosphorus and is free from sulphur.

Liebermann has claimed that nuclein is a combination of albumen and metaphosphoric acid, and he has prepared an "artificial nuclein" by precipitating albuminous solutions with this acid. However, since the substance thus formed does not yield xanthin bases, it can not be a true nuclein, but is a paranuclein. This artificial preparation corresponds with nuclein in the following particulars: 1, it is not digested by gastric juice; 2, it reddens moist litmus paper, although aqueous extracts of it are not acid; 3, it burns with difficulty and leaves an acid residue; 4, it is insoluble in dilute acids; 5, it is soluble in dilute alkalies; 6, it takes staining reagents as the nuclei of cells do; 7, it yields, according to Malfatti, nucleinic acid.

In view of these points of resemblance, it will be of great interest and of some importance to determine whether or not the artificial preparation has the germicidal properties which, as we will see later, are possessed by the natural nucleins.

Horbaczewski has made a most valuable contribution to our knowledge of the relation of uric acid to the nucleins. As has been stated, Kossel had demonstrated that the true nucleins yield one or more xanthin bases as decomposition products, but the relations of the nucleins to uric acid could only be surmised from the well-known close chemical connection between xanthin and uric acid. Horbaczewski has ascertained that uric acid is produced from the nuclein of spleen pulp, when the substance is brought in contact with certain oxidizing agents, such as fresh blood or dilute solution of the peroxid of hydrogen. Spleen nuclein does not contain ready formed uric acid, but it does contain the antecedent or mother substance of uric acid. This mother substance yields not only uric acid, but the other xanthin substances, as xanthin, sarkin, guanin and adenin. Uric acid is formed when the antecedent substance is split up in the presence of an oxidizing agent, while the other substances result when the process is carried out in the absence of such agents. This is in complete harmony with the facts which have been ascertained by the conversion of one of these xanthin bodies into other members of the same group. Certain other nucleins, as well as that of the spleen, serve as antecedents of uric acid. This discovery makes clear a hitherto most perplexing problem, which has concerned the chemist, the physiologist

and the clinician. In short, it explains the origin of uric acid in the mammalian body. The chemist had taught us to look upon uric acid as the result of an imperfect oxidation, the completed product of which is urea, but the physiologist has been unable to demonstrate this supposed relationship between urea and uric acid. The experiments of Horbaczewski show that the amount of uric acid and other xanthin bodies formed is a measure of nuclein metabolism. In other words, it indicates the number of nucleated cells which are suffering disintegration processes. Normally, the white blood corpuscles constitute the most important and probably the most numerous nucleated cells daily undergoing destructive changes. Therefore, any condition which induces an abnormal leucocytosis increases the amount of uric acid. In infants the number of nucleated cells is proportionately larger than in adults and the amount of uric acid formed is correspondingly large. In the fasting state, the white blood corpuscles are reduced and the uric acid is also diminished. Meat diet increases the number of white corpuscles and consequently the formation of uric acid. Quinin and atropin diminish the number of these corpuscles and by so doing lessen the amount of uric acid formed; while pilocarpin, antifebrin and antipyrin have been found to increase both. The increased formation of uric acid and xanthin in leukemia, phosphorous poisoning, acute febrile diseases, especially pneumonia, cirrhosis of the liver and pernicious anemia, now finds an explanation.

I should like to follow out this line of my subject and to discuss the significance of that condition which is sometimes designated as a uric acid diathesis, but time will not permit.

With the aid of Drs McClintock and Novy, I have demonstrated that some of the nucleins have germicidal properties. We experimented with nucleins obtained from yeast, eggs, the spleen, thyroid gland, and testes. All of these were found to be distinctly bactericidal. The results of this work were published in detail last year and it is not necessary to go over the subject in this paper. Kossel, of Berlin, has confirmed our statements concerning the germicidal action of the nucleins.

Dr. McClintock and I have also demonstrated that the germicidal constituent of blood serum is a nuclein. This nuclein is undoubtedly furnished by the polynuclear white corpuscles. Having demonstrated that the nucleins are germicidal, it remained to be ascertained whether or not they might be employed to prevent or arrest the growth of germs in the animal body.

I will detail some attempts made to render animals immune to certain diseases, by first treating them with nuclein and subsequently inoculating them with the germs.

The diplococcus of pneumonia is a germ which in its virulent form is, practically without exception, fatal to rabbits, causing death on the second or third day. Immunity to this germ has been secured by Emmerich, and others by previous treatment with the attenuated germ and with sterilized cultures. The following experiments were made in order to see whether or not immunity to the diplococcus pneumoniæ could be secured by previous treatment with nuclein.

The solution used in all of these animals contained about 2 per cent. of yeast nuclein:

Experiment 1.

Rabbit, weight 1,732 grams: Was given subcutaneously one c. c. of nuclein solution November 6, 7 and 9. On November 11, two days after the last nuclein treatment, this animal was inoculated with a virulent culture of the micrococcus. A control, weighing 1,520 grams, was inoculated at the same time and with the same amount of the culture. The control was found dead on the morning of November 13 and the treated animal on the morning of the 14th. The treated animal survived the untreated one twenty-four hours. Both animals showed the characteristic effects of the germ.

Experiment 2.

Rabbit, weight 1,222 grams: Was given subcutaneously one c. c. of the nuclein solution, November 6, 7, 9 and 11. Immediately after the last nuclein treatment, the animal and a control, which weighed 1,325 grams, were inoculated intra-abdominally with 0.2 c. c. of a virulent culture of the germ. On the morning of November 13, the control was found dead. The treated animal was evidently sick and weighed only 1,145 grams, showing a loss of 67 grams, and it continued to lose weight until November 24, when it was reduced to 990 grams. After this it slowly gained, weighing 1,075, December 1; 1,347, January 23; and 1,465, February 27. On the last mentioned day it was killed and found to be sound in every organ.

Experiment 3.

Rabbit, weight 1,130 grams: Was given subcutaneously one c. c. of the nuclein solution November 6, 7, 9, 11, 13 and 18. Immediately after the last nuclein treatment, this animal and a control weighing 1,325 grams were inoculated intra-abdominally with 0.2 c. c. of a virulent culture. On the morning of November 20, the control was found dead. The treated animal sickened, lost flesh and died November 27 from the effects of the germ.

The explanation of the failure to secure so good a result in this case as in the preceding is easily seen. In this experiment, five days elapsed between the last and the preceding injection of nuclein, and two days between that and the one preceding it. In other words, the intervals between the nuclein treatments were too long. This teaches us that the effects of nuclein are transient and that in order to receive any real benefit from its use it must be administered repeatedly and at comparatively short intervals. This lesson must not be lost sight of when we come to consider the therapeutical uses of nuclein.

Experiment 4.

Rabbit, weight 1,735 grams: Was treated subcutaneously with one c. c. of the nuclein solution on November 6, 7, 9, 11, 13, 18, 21, 23 and 24. Immediately after the last nuclein treatment it was inoculated intra-abdominally with 0.2 c. c. of a virulent culture of the germ. At the same time, four controls, weighing 1,395, 1,590, 1,210 and 1,400 grams, received in the same manner like quantities of the same culture. On the morning of November 26 all the controls were found dead. The treated animal lost weight and weighed December 1, 1,540 grams. After this it gained in weight, advancing to 2,200 by January 23 and to 2,460 grams by February 27. On this last mentioned date, this animal was killed and found to be normal in every respect.

EXPERIMENT 5.

Rabbits Nos. 1, 2, 3, 4, 5, 6, 7 and 8, weighing respectively 580, 595, 625, 600, 610, 537, 522, and 387 grams, were treated subcutaneously with the nuclein solution as follows: March 9, 0.3; March 10, 0.5; March 13, 0.6; March 14, 0.7; March 15, 1.0; March 17, 1.0; March 19, 1.0 c. c. Immediately after the last treatment, all were inoculated with 0.2 c. c. of a virulent culture of the diplococcus. At the same time, control rabbits, A and B, weighing respectively 550 and 365 grams were inoculated in like manner with the same culture. On the morning of March 21, both controls and rabbits 2 and 8 were found dead. All the other treated animals remain well and healthy to-day (May 3). In this experiment, immunity was conferred upon 75 per cent. of the treated animals, while all of the controls in all the experiments died.

At this point in my experimentation, the following interesting question suggested itself: Is the immunity thus secured due to the direct germicidal action of the nuclein, or does the nuclein act by stimulating some organ whose duty it is to protect the body against bacterial invasion? An attempt to answer this question was made in the following experiment:

EXPERIMENT 6.

Rabbits Nos. 1, 2, 3, 4, 5, 6, 7, and 8, weighing respectively 344, 400, 415, 391, 365, 414, 287 and 417 grams, received injections of two c.c. of the nuclein solution intra-abdominally March 20, immediately after each had been inoculated with 0.2 c.c. of a virulent culture of the diplococcus of pneumonia. At the same time, rabbits, A and B, weighing respectively 394 and 397 grams, were inoculated with like amounts of the same culture, but received no nuclein. On the morning of March 22, all of these animals were found dead, and section showed that they died from the effects of the germ. Evidently when used in this way, the nuclein affords no protection against this germ. This confirms the view which I have before expressed, that the production of immunity is an educational process. I can hardly believe that as much of the nuclein as two c.c. existed in the body of any one of the animals which had been rendered immune, but this amount failed to protect when injected into the body immediately after inoculation. I conclude from this that the immunity which had been secured by repeated injections of smaller quantities of the nuclein was not due to the direct germicidal effects of this substance, but to its stimulating effect upon some organ. I will return to this point later.

It seemed desirable to test the immunizing effects of nuclein upon some other species of animal. Guinea pigs were selected and the results are given in the following experiments:

EXPERIMENT 7.

Guinea pig, weight 487 grams, was treated with nuclein solution as follows: October 23, 0.2; October 24, 0.4; October 25, 0.6; November 3, 0.6; November 4, 0.8; November 6, 1.0; November 7, 1.0; November 9, 1 c.c. November 11, two days after the last nuclein treatment, this pig (now weighing 560 grams) was inoculated with 0.2 c.c. of a virulent culture of the pneumonia germ. At the same time, a control pig, weighing 492 grams, was inoculated with a like amount of the same culture. The control died November 15, and the treated one November 21. Both animals showed the characteristic lesions and the germ was recovered in pure culture from each. Evidently in this case, the nuclein gave partial, but not complete, protection.

EXPERIMENT 8.

Guinea pig, weight 514 grams, had the same nuclein treatments as the preceding and an additional one of one c.c. November 11. Immediately after the last treatment it was inoculated. The same animal, used as a control in the preceding experiment served a like purpose in this. The treated animal died November 22.

EXPERIMENT 9.

Pigs 1 and 2, weighing 299 and 317 grams, had the same nuclein treatments as the preceding, with the addition of one c.c. each on November 13 and 18. Immediately after the last treatment, these animals, together with a control weighing 965 grams, were inoculated with the germ. The control died November 23. Of the treated pigs, No. 2 died from the effects of the germ December 1, and No. 1 was killed December 19 and found to be normal. When killed, this pig weighed 525 grams.

EXPERIMENT 10.

Pigs 1 and 2, weighing 317 and 364 grams, were treated with the same nuclein solution as the preceding, with the addition of one c.c. each November 18 and 21. November 23, two days after the last nuclein treatment, they were inoculated with the pneumonia germ. A control, weighing 617 grams, was inoculated with the same amount of the culture at the same time. The control died November 27. The treated animals were killed February 22 and found to be normal. They weighed 785 and 695 grams respectively when killed.

EXPERIMENT 11.

Pigs 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10, weighing 314, 335, 330, 265, 240, 275, 283, 435, 300 and 392, had on five successive days 1 c.c. each of the nuclein solution. Immediately after the last treatment, each pig received 0.2 c.c. of a virulent culture in the abdominal cavity. At the same time, two controls weighing 320 and 400 grams, were inoculated with the same culture. Both controls died on the fourth day, while all of the treated animals survived.

From the experiments detailed above, I draw the following conclusions:

1. Rabbits and guinea pigs may be protected against virulent cultures of the diplococcus of pneumonia by previous treatment with hypodermatic injections of a solution of yeast nuclein.

2. The immunity thus secured is not due to the action of the nuclein, as a germicide, directly.

3. The process of securing this immunity is an educational one, and, most probably, depends upon the stimulating effect of the nuclein upon some organ, whose function it is to protect the body against bacterial invasion.

4. The longer the nuclein injections are continued and the more frequently they are administered, the more complete is the immunity which is secured.

5. In order to obtain this immunity, the inoculation with the germ must follow soon after the last treatment with the nuclein.

I have made some attempts to render guinea pigs immune to tuberculosis. So far the results have been

not altogether satisfactory and in some instances contradictory. However, I will give these results, hoping that they may throw some light on the subject, and may possibly lead to something better.

In the first place it is desirable to ascertain whether the nuclein has any germicidal effects upon the bacillus tuberculosis outside the body.

EXPERIMENT 12.

August 8, 1893. Stirred up a large loop of a virulent sputum with one part of a 2 per cent. yeast nuclein solution diluted with five parts of sterilized, physiologic salt solution. Immediately injected three c.c. of this mixture into the abdominal cavity of pig 50, weighing 330 grams. August 18, killed the pig. There was a very slight, but perceptible, tubercular thickening of the border of the omentum. Result, failure.

EXPERIMENT 13.

August 8, 1892. After the above-mentioned mixture of sputum and dilute nuclein solution has stood for one hour in an incubator at 38 C., 3 c. c. of it was injected into the abdominal cavity of pig 51, weighing 625 grams. September 27, killed this pig, now weighing 575 grams. Found a tubercular nodule in the abdominal wall at the point of inoculation. This nodule was the size of a pea and contained caseous matter in which a few granular bacilli were found. The border of the omentum was thickened and this was tubercular. Result, failure.

EXPERIMENT 14.

August 9, 1892. Injected three c. c. of the above-mentioned mixture of sputum and dilute nuclein solution, after it had stood for twenty-four hours in an incubator at 38 C., into the abdominal cavity of pig 42, weighing 360 grams. August 18, killed this pig, now weighing 390 grams, and found it normal in every respect. The point of inoculation could not be detected. Result, positive.

EXPERIMENT 15.

August 18, 1892. About five c. c. of thick, ropy, virulent sputum was placed in an Esmarch dish, covered with twenty c. c. of the nuclein solution undiluted. After this had stood for twenty-four hours in an incubator at a temperature of 38 C., it was examined microscopically and the tubercle bacilli were found to be present in great numbers and to stain normally. August 19, one loop of this sputum was stirred up with one c. c. of salt solution and injected into the abdominal cavity of pig 52, weighing 402 grams. September 1, this pig, now weighing 415 grams, was killed and found to be normal. Result, positive.

EXPERIMENT 16.

Feb. 3, 1894. Stirred up one part of virulent sputum with five parts of nuclein solution and allowed to stand in an incubator at 38 C., for four days. At the expiration of this time, microscopic examination showed the tubercle germs present in large numbers and staining well. February 9, inoculated pig 120, weighing 300 grams, with the sputum. February 29, killed the pig, now weighing 340 grams, and found it to be perfectly normal. Result, positive.

It might possibly have happened, had these pigs been allowed to live longer, that some of them, found free from tuberculosis, would have developed the disease. Further experiments upon this point must be made.

EXPERIMENT 17.

Pigs 122 and 123, weighing respectively 202 and 495 grams, received hypodermatic injections of yeast nuclein solution (2 per cent,) as follows: February 10, 0.1; February 12, 0.2; February 13, 0.3; February 14, 0.4; February 15, 0.5; February 17, 0.5; February 19, 0.6: February 21, 0.7; February 23, 0.8; February 24, 0.9; February 26, 1.0; February 27, 1.0; February 28 1.0; March 1, 1.0

March 1, these pigs, now weighing 289 and 557 grams respectively, together with a control (No. 134, weight 20 grams) were inoculated with a pure culture of the bacillus tuberculosis. The control was found dead March 26. Section showed a small nodule at the point of inoculation. The omentum was thickened and tuberculous. The spleen, both kidneys, and the lower lobe of one lung are involved.

March 26, pig 122, weighing 339 grams, was killed and found to be perfectly normal. April 23, pig 123, weighing 597 grams was killed. There is a nodule as large as a filbert at the point of inoculation. This contains caseous matter filled with bacilli. The omentum contains numerous caseous nodules, in which germs are found. Other organs are normal. Whether No. 122 would have developed tuberculosis, had it been allowed to live longer, no one can say.

EXPERIMENT 18.

Pigs 124 and 125, weighing 227 and 255 grams, received the same treatment as Nos. 122 and 123 with the addition of one c. c. each on March 2 and 3. Immediately after the last treatment, these pigs, now weighing 340 grams each, were inoculated with a virulent sputum. At the same time a control (No. 135, weight 242 grams) received the same inoculation.

April 3, the control (weight 282 grams) was killed and the omentum, spleen and liver were found filled with tuberculous nodules.

April 3, No. 125 (weight 400 grams) was killed. With the exception of a small nodule containing caseous matter with few bacilli, at the point of inoculation, no abnormality could be found.

April 24, No. 124 (weight 455 grams) was killed. There were a few small nodules in the omentum. These contained bacilli. In all other respects the animal was normal.

While all of these animals were infected, the disease had made most extensive and rapid progress in the untreated one.

EXPERIMENT 19.

Pigs 126 and 127 (weight 215 and 300 grams) received one more nuclein treatment, March 5, than Nos. 124 and 125. Immediately after last treatment, these pigs (weight 314 and 475 grams) were inoculated with a virulent sputum. At the same time a control (No. 137, weight 332 grams) was inoculated with a like amount of the same sputum.

April 25, the control (weight 365 grams) was killed. There is a small tubercular nodule at the place of inoculation. The inguinal glands on both sides are greatly enlarged and tuberculous. The spleen is much enlarged and tuberculous. The omentum contains numerous tubercular nodules.

April 25, No. 126 (weight 365 grams) was killed and found to be perfectly normal in every respect.

April 25, No. 127 (weight 580 grams) is reserved in order to see whether it will become tuberculous.

EXPERIMENT 20.

Pigs 128 and 129, weighing 307 and 230 grams, received one more nuclein treatment than Nos. 126 and 127. Immediately after the last treatment, they (weight 480 and 340 grams) were inoculated with sputum. At the same time a control (No. 138, weight 315 grams) was inoculated with the same sputum.

April 25, the control (weight 427 grams) was killed. There was a tubercular nodule as large as a filbert at the point of inoculation. The inguinal glands on both sides were enlarged and tuberculous. The spleen was enlarged and filled with pin-head tubercles. The liver was filled with pin point nodules.

April 25, No. 129 (weight 427 grams) was killed. There was a pin-head nodule at the point of inoculation and the large gland in the omentum was enlarged to the size of a pea and tubercular. All other organs were normal. No. 128 has been reserved in order to observe the result of further time.

These experiments seem to indicate that previous treatments with nuclein retard, but in the majority of cases do not prevent, the development of tuberculosis from subsequent inoculations. I have made a number of experiments in which the nuclein treatment was not begun until some days after the animals had been inoculated. The following statements detail some of the results obtained:

EXPERIMENT 21.

Dec. 27, 1892, four glycerin agar tubes of the tubercle bacillus were rubbed up with twenty c. c. of beef tea, and guinea pigs Nos. 9, 10, 11, 12, 13, 14, 15, 16, 18 and 19 were inoculated by injection into the abdominal cavity. Nos. 7, 8 and 17 were used as healthy controls. Of those inoculated, Nos. 9, 11, 13, 14 and 18 were selected for treatment, while Nos. 10, 12, 15, 16 and 19 were kept as untreated controls.

The weights of these animals December 27 were as follows:

No. 7—747 grams.	No. 12—667 grams.	No. 16—607 grams.
No. 8—889 grams.	No. 13—724 grams.	No. 17—747 grams.
No. 9—709 grams.	No. 14—525 grams.	No. 18—629 grams.
No. 10—759 grams.	No. 15—744 grams.	No. 19—560 grams.
No. 11—614 grams.		

The solution used in the treatment of this series is known as solution C, and it was obtained in the following manner: Some brewer's yeast was extracted with dilute alkali and filtered. The filtrate was precipitated with dilute hydrochloric acid. The precipitate was re-dissolved in alkali and re-precipitated with acid several times. Finally the precipitate was dissolved in .25 per cent. of potassium hydrate. This solution gives the biuret, xanthoproteic and Millon reactions. It contains a nucleoalbumen which is soluble in a 0.2 per cent. solution of hydrochloric acid, but is precipitated on the further addition of acid. The amount of nucleoalbumen in the solution was determined and found to be .9 of one milligram per cubic centimeter. This solution was found during the experiment to be too alkalin, the excess of alkali causing sloughing of the tissue. After this was discovered the solution was diluted with a sterilized 6 per cent. solution of common salt, and then neutralized by the addition of dilute acetic acid. However, the fact that the solution was too alkalin was not discovered until some of the animals had been seriously injured by the treatment, as will be subsequently shown.

Of the healthy controls, all remained in perfect condition. The fate of each of the untreated tuberculous animals was as follows:

No. 10 died Jan. 7, 1893. Post-mortem examination showed internal hemorrhage, clots of blood being found under the liver and stomach. Undoubtedly some small blood vessel was wounded at the time of inoculation and the slow oozing of blood had led to death. The site of the wound could not be located. It is probable that the needle punctured the liver. The extent of the tuberculosis was surprising. The border of the great omentum was a mass of tuberculous nodules. The surface of the liver was dotted with tubercles and the germ was found not only in all these nodules, but also in a bloody exudate in the pleural cavity.

No. 12 was killed by chloroform April 3, 1893. Post-mortem examination showed the great omentum to be a tuberculous mass. One lump was as large as a hickory nut and was filled with cheesy matter. In fact, all of the tuberculous nodules contained caseous substance. This was very soft, and I suppose that it would soon have broken down and spread the disease to other parts of the body. Other organs than those mentioned above were normal.

No. 15 died Jan. 13, 1893. Post-mortem showed extensive tuberculosis. The liver was dotted with tuberculous nodules. The kidneys and spleen also showed numerous pin-head points of infection. The germs stained in a normal manner. The pleural cavity was again found filled with a bloody exudate. The lungs were infiltrated and solidified in places. There was no noticeable phagocytosis.

No. 16 died Jan. 12, 1893. The liver was filled with fine tubercles, from those barely visible to those the size of a pin-head. The fringe of the omentum was tuberculous. There was an exudate in the pleural cavity. Germs were found in all of these places and stained normally.

No. 19 was pregnant at the time of inoculation, and gave birth to one pig January 10. After this, the animal seemed to improve. It was killed May 24, 1893. The post-mortem examination showed a widely extended tuberculosis. The great omentum contained tubercles as large as almonds. These were filled with a creamy matter, in which millions of germs were found. A tuberculous nodule as large as a filbert was found in the lower margin of the liver, and smaller nodules existed in other parts of this organ. Tubercles of the size of a pea were found scattered through the mesentery, peritoneum and diaphragm. The kidneys were also tuberculous. The spleen and lungs remained unaffected. The germs found in the places above mentioned stained normally. The treatment was begun six days after the inoculation.

The following table will show the dates of treatment and the amounts of solution C injected. These injections were made under the skin over the abdomen:

Jan'y No.	2 c.c.	4 c.c.	6 c.c.	8 c.c.	10 c.c.	12 c.c.	13 c.c.	14 c.c.	15 c.c.	16 c.c
9	.2	.3	.5	.25	.02	4.	. .	5.	5.	5.
11	.4	.3	.5	.25	.01	6.	. .	. .	5.	. .
13	.6	.3	.5	.25	.01	1.	5.	. .	5.	. .
14	.6	.3	.5	.25	.01	.5	5.	4.	5.	3.5
18	.6	.3	.5	.25	.01	.5	5.	. .	5.	. .

Jan'y No.	17 c.c.	18 c.c.	19 c.c.	20 c.c.	21 c.c.	22 c.c.	23 c.c.	24 c.c
9	5.	5.	. .	. .	. .	. .	. .	. .
11	5.	. .	. .	. .	. .	. .	. .	. .
13	5.	. .	5.	5.	5.	5.	5.	5.
14	5.	5.	5.	. .	. .	. .	. .	. .
18	5.	. .	5.	5.	5.	5.	5.	5.

February No.	1 c.c.	2 c.c.	13 c.c.	14 c.c.
9	. .	5.	5.	5.
11	5.	5.	5.	. .
13	. .	. .	. .	. .
14	. .	. .	5.	. .
18	. .	. .	. .	. .

The large injections given Nos. 9 and 12 on January 12 caused extensive sloughing of the skin. The fate of the treated pigs was as follows:

No 9 received, as is shown in the above table, four c.c. on January 12. Before the injection, the animal seemed to be dying. The respirations were shallow and rapid, and the peculiar pumping motion of the body which had been observed in other guinea pigs just before death was very marked. After this large injection, and notwithstanding the sloughing of the skin which followed, the animal improved. February 16, No. 9 was killed, on account of the extensive sloughing which now existed on the abdomen. The fringe of the omentum was lined with tubercular nodules from the size of a pin-head to that of a hazel nut. The base of the liver was tuberculous. Tubercular nodules were found on the diaphragm and in the pleura. The lungs were free from disease. All of the above-mentioned nodules contained numerous bacilli, which showed granular degeneration. Phagocytosis was marked. The spleen was enormously enlarged and weighed 18.2 grams. Two glycerin agar tubes were inoculated with the germs taken from this animal. These tubes did not develop. One of the nodules from the omentum was rubbed up with 1.5 c.c. of beef tea, and the whole of this was injected into the abdominal cavity of guinea pig 28.

Guinea pig 28 was killed May 23, 1893. It weighed at the time of inoculation 490 grams, and on the day it was killed, 610 grams. The animal was found to be very fat, apparently well, and the post-mortem examination failed to reveal any trace of tuberculosis or any other trouble.

No. 11 had an injection of six c.c. of the strongly alkalin solution of nuclein on January 12. The condition of this animal at that date was practically the same as that of No. 9, and both seemed to be in a worse condition than No. 15. After this injection, this animal gradually decreased in weight until it died March 3, at which time it weighed 375 grams. The skin over the thighs and arms was covered with thick scales. Over the abdomen there was quite a slough, and the skin was adherent to the muscular walls. The condition of the skin and the sloughing were due to excess of alkali. The fringe of the omentum was lined with tubercular nodules, one of which was as large as a hazel nut. These were filled with germs, many but not all of which showed the granular degeneration. Tubes were made from these, and although slow to develop, both showed an abundant growth on April 3. The lungs were somewhat congested, but not tuberculous. The fluid usually found was present in the pleural cavity. The liver was dark and congested, but not tuberculous. The spleen weighed 5.85 grams. At the same time that the tubes were inoculated, guinea pig 30 was also inoculated with a tubercular nodule from the omentum, rubbed up in beef tea.

No. 30 was killed May 30. This animal was well nourished, having gained in weight from the day of inoculation, March 3, from 480 grams to 587 grams. The only abnormality which could be found in the animal was a nodule not larger than a flaxseed in the great omentum. On cutting this open it was found to contain a cheesy matter, and this, after proper staining formed a most interesting study. The cheesy mass was made up of polynuclear cells, the nuclei taking the blue stain so deeply that they might have been mistaken for micrococci. After searching through many fields, the granular *débris* of a bacillus was found, and in the whole of the contents of the nodule less than a dozen of these remnants of bacilli were detected.

No. 13 was killed April 2, 1893. It weighed at this date 797 grams. There was a tubercular nodule under the skin of the abdomen at the place of inoculation. This was as large as a small cherry. It contained cheesy matter. There were also three very small nodules in the great omentum. All of these nodules contained the bacillus, which showed a marked beaded degeneration. Four glycerin agar tubes were made from these nodules. On May 23, two of these tubes showed no growth, while the other two showed slight growth. No animal was inoculated with this material.

No. 14, having lost in weight until it was reduced to 300 grams, died April 20. There were two small tubercular nodules one-eighth of an inch in diameter in the omentum. There were no other signs of tuberculosis in any part of the body. No tubercle germs could be found anywhere. The spleen was enlarged and adherent. This organ contained a small abscess, cultures from which developed a small bacillus giving bipolar staining. The kidneys were diseased, whitish on the surface, and the cut surfaces showed infiltrated blood. The contents of one tubercular nodule were rubbed up with three c.c. of beef tea and one c.c. of this was injected into the abdominal cavity of guinea pig 31.

No. 31 was killed Oct. 20, 1893. It weighed at the time of inoculation 792 grams, and at the time of killing 920 grams. The animal was very fat, and post-mortem examination showed no abnormality.

No. 18 was killed May 24, 1893. The animal was well nourished. Post-mortem examination showed only two small tubercles. One of these was in the great omentum and about the size of a small pea. This contained cheesy matter, in which only a few germs could be found. The other was of about the same size and was found in the lower margin of the liver. In this the germs were relatively somewhat more abundant, but were absolutely few. All other organs were normal. Guinea pig 37 was inoculated with the contents of the nodule taken from the omentum.

No. 37 was killed Oct. 20, 1893. At the time of inoculation it weighed 414 grams, and at the time of killing 720 grams. This animal was found to be in a perfectly healthy condition in every respect.

The germ with which these animals were inoculated was evidently markedly virulent. It is impossible to tell how far the disease had progressed in each animal when the treatment was begun. I think that I am justified in concluding that the progress of the disease was retarded and the virulence of the germ reduced (as was shown by the results of the secondary inoculations) by the treatment.

EXPERIMENT 22.

April 28, 1893, pigs 7, 8, 17, 26, 27, 32, 33 and 34 were inoculated with a pure culture of the bacillus tuberculosis.

The weights of these pigs, April 28, were as follows:

No. 7— 987 grams. No. 26—705 grams. No. 33—597 grams.
No. 8—1147 grams. No. 27—685 grams. No. 24—950 grams.
No. 17— 972 grams. No. 32—717 grams.

Nos. 7, 8, 17, 26 and 27 were treated, while Nos. 32, 33 and 34 were left without treatment.

The solution used in the treatment of these animals was one of paranuclein, obtained from the yolks of eggs, of unknown strength.

The fate of each of the untreated animals was as herewith given:

No. 32 was killed Oct. 20, 1893. At this time it weighed 945 grams, a gain of more than two hundred grams since the time of inoculation. Examination showed two tubercular nodules in the omentum. One was as large as a hazelnut, while the other was smaller. These were filled with bacilli, normal in appearance and staining well. All other organs were normal.

No. 33 was killed Sept. 22, 1893. It then weighed 885 grams, a gain of nearly three hundred grams since inoculation. The omentum was filled with tubercular nodules. These contained numerous bacilli. Many of the mesenteric glands were tuberculous and the peritoneal covering of the stomach was dotted with pin-head tubercles. All other organs were normal.

No. 34 was killed Sept. 22, 1893. At this time it weighed 1,020 grams, a gain of 70 grams since inoculation. There was a tubercular nodule the size of a hazelnut in the omentum. This contained a purulent fluid, in which a few bacilli were found. These germs stained poorly. The rest of the omentum was thickened but not nodular. The lungs contained numerous tubercular nodules.

The treatment of Nos. 7, 8, 17, 26 and 27 was begun May 2, four days after the inoculation. The amounts received by each of these animals are stated in the following table:

May	2	3	4	5	8	9	10	11
No.	c.c.	c.c.	c.c.	c.c.	c.c.	c.c.	c.c.	c.c.
7	2.5	2.5	2.5	2.5	1.66	1.	1.	1.
8	. .	2.5	2.5	2.5	1.66	1.	1.	1.
17	. .	2.5	2.5	2.5	1.66	1.	1.	1,
26	. .	2.5	2.5	2.5	1.66	1.	1.	1.
27	. .	2.5	2.5	2.5	1.66	1.	1.	1.

May	12	15	16	17	18	19	22
No.	c.c.	c.c.	c.c.	c.c.	c.c.	c.c.	c.c.
7	1.	1.	1.	1.	1.	1.	1.
8	1.	1.	1.	1.	1.	1.	1.
17	1.	1.	1.	1.	1.	1.	1.
26	1.	1.	1.	1.	1.	1.	1.
27	1.	1.	1.	1.	1.	1.	1.

The fate of these animals was as follows:

No. 7 was killed Sept. 24, 1893. At this time it weighed 1,010 grams, a gain of 37 grams since inoculation. Examination failed to reveal any abnormality.

No. 8 was killed Feb. 20, 1894; weight 1,240 grams a gain of 100 grains since inocculation. Post-mortem showed an excessively fat animal. At one point the omentum was slightly adherent to the liver. On carefully detaching the parts, a nodule the size of a pea was found. This nodule contained cheesy matter in which no germs could be found. In all other respects this animal was normal.

No. 17 was killed Oct. 20, 1893, weight 1,015 grams, a gain of 43 grams since inoculation. Examination failed to reveal any abnormality.

No. 26 was killed Oct. 17, 1893, weight 845 grams, a gain of 140 grams since inoculation. The omentum contained a large amount of fat. In this fat I found one nodule the size of a flaxseed. I could find no germs in this. In the lower border of the liver a nodule the size of a pea was found. This contained caseous matter in which a few germs were found. In all other respects this pig was normal.

No. 27 was killed Sept. 27, 1893, weight 750 grams, a gain of 65 grams since inoculation. Examination showed tubercular nodules in the great omentum. These contained purulent matter with a few bacilli. All other organs were normal. The condition of this animal did not differ materially from that of the untreated ones.

It should be remarked that about the middle of May, Nos. 26 and 27 seemed quite sick. On May 19, they weighed 630 and 552 grams respectively. It is evident that the germ used in this experiment was not very virulent. Three out of five of the treated pigs were practically free from tuberculosis.

In what manner may nuclein be of therapeutic value? What properties has it which may be of service in the treatment of disease? What is its physiologic effect? These questions can not yet be answered in detail and without reservation. In the first place, I may say that I believe the nucleins to be wholly free from poisonous properties. I have injected subcutaneously in man one and one-half ounces of a 2 per cent. solution of yeast nuclein at one time, without harm other than the temporary irritation caused by the large volume of fluid injected, and I have administered six and eight ounces of the same solution during twenty-four hours by mouth without ill effect. In some persons, however, a much smaller amount than those mentioned above, given hypodermatically, may cause a marked elevation of temperature. In one patient, the hypodermatic injection of forty drops or more of the 2 per cent. solution of yeast nuclein, frequently tried, invariably caused the temperature to rise from 2 to 4 degrees. This patient is a large, apparently robust man, weighing 195 pounds, in whom tuberculosis of the neck of the bladder had been recently detected. It should be stated that this man suffered more or less constantly from muscular rheumatism. In a few instances, the injection of eighty drops or more has been followed by a chill and an elevation of temperature. In some of these an erysipelatous redness has appeared about the point of introduction, but this has always disappeared after twenty-four hours without treatment.

In each of three young men, who were, so far as I could ascertain, in good health, the subcutaneous injection of eighty drops of a 2 per cent. solution of spleen nuclein caused an elevation of temperature of 1 degree at the end of the third hour. In these cases the temperature gradually rose and fell in the same manner. In tuberculous patients, the effect of repeated treatments is a lowering of the temperature.

I have employed daily injections in patients for six months and longer, without seeing any evidence that the nucleins may produce injurious effects when thus continued.

We have, in the nucleins, substances which we have long desired, *i. e.*, non-poisonous germicides. We

reasonably expect to find that such substances possess therapeutic value. The following brief reports will illustrate the character of some of the cases in which I have employed nuclein with benefit:

Case 1.—Membranous Tonsillitis—Leida S., 10 years old, was seen about 8 P.M. Both tonsils were swollen and covered with a thin white membrane, through which the dark red of the inflamed gland could be seen here and there. The temperature was 102.4 degrees. The tongue was slightly coated. The bowels had moved once during the day. A 2 per cent. solution of yeast nuclein was diluted with an equal volume of sterilized salt solution and the patient was instructed to use this as a gargle every hour until she should go to sleep and to continue the same the next morning. Nothing else was prescribed. The next day about 11 A.M., the little girl came to my office with temperature normal, and throat free from soreness. The membrane had disappeared and the tonsils were much reduced in size.

I have records of some twelve cases similar to this. In all, the fever disappeared within twenty-four or at most forty-eight hours. In none of these was anything, save the nuclein, administered.

These cases are very suitable for the use of nuclein, and especially for yeast nuclein. The germ present in the membrane belongs to the pyogenic organisms, and these are, as we have found by experiment, especially susceptible to the germicidal effects of the yeast nuclein, while they are much more resistant to spleen nuclein.[1] In the second place, the membrane is spread out in a thin layer and therefore the application of the nuclein is direct. Solutions of nucleins diffuse through membranes very slowly and consequently the thinness of the tonsillar deposits is favorable to the rapid action of the germicide.

Case 2.—Streptococcus Diphtheria.—On the evening of April 14, the throat of Denwood Burt, a boy 3 years old, was found to be filled with a thick grayish membrane, which covered the posterior wall of the larynx and extended on each side in front of the pillars of the fauces. The child was very restless and its temperature in the axilla was 102.5 degrees. The only remedy employed was a 2 per cent. solution of yeast nuclein diluted with an equal volume of sterilized salt solution. The child was not old enough to gargle and stoutly resisted every attempt to employ the remedy. An atomizer was used through both the nose and mouth. The spray was used three times during the night of April 14, six times during the 15th, twelve times each during the 16th, 17th and 18th. The temperature ran as follows: April 15, 100 at 12:30 P.M.; 101 at 6:30; and 100 at 8:00; April 16, 8:30 A.M., 98.5; at 8:00 P.M., 101.2; April 17, 12:00, 99.2; 6:00 P.M., 99; April 18, normal all day. The membrane gradually disappeared and was all gone by the evening of April 17.

I have records of three other cases similar to this, but in these the patients were old enough to gargle and the membrane disappeared and the temperature fell more rapidly. I have not had an opportunity to test the value of the nucleins in diphtheria caused by the Löffler bacillus. In the cases mentioned, the streptococcus was present.

Case 3.—Indolent Ulcer.—Mr. Stauch, a printer about 40 years old, had been under treatment in Detroit and Ann Arbor for more than a year for an indolent ulcer of the leg. Various stimulating and antiseptic washes and dressings had been applied. The ulcer measured one and one-quarter inches in length and half an inch in breadth at the widest part. I had this patient under observation some four weeks before I resorted to the nuclein. During this time, I used a mercurial wash and attempted to administer potassium iodid. However, the latter produced a severe acute coryza, and although it was repeatedly discontinued and begun again, the same unpleasant result followed each time. When I began the nuclein, nothing else was used. I injected into the tissue about the ulcer 80 minims of a 2 per cent. solution of yeast nuclein. In all, eight of these injections were made. The ulcer healed perfectly, and although two months have passed since the last treatment, there has been no return. The injections caused a burning sensation at the time, but immediately after each treatment the patient walked half a mile to his work and he stood at his case each working day of the week.

This is the only case of the kind in which I have employed nuclein.

As has been stated, the action of nuclein in giving immunity to the pneumonia germ is not due to its direct germicidal effect. To what is its action due? This is a most important question. In my paper on "Immunity and Cure in the Infectious Diseases," read before the Pan-American Medical Congress last September, I stated that we must look for curative agents in these diseases in one or the other of the following classes: 1, non-poisonous germicides of cellular origin; 2, substances which stimulate the activity of those organs whose function it is to protect the body against these diseases. Now, while we have in the nucleins, substances of the first class (and the action of yeast nuclein in membranous tonsillitis and in streptococcus diphtheria must be due to its direct germicidal action), I believe that the nucleins belong also to the second class mentioned above. The phagocytic theory, developed by Metchnikoff, teaches that the polynuclear white corpuscles are the natural defenders against bacterial invasion. This theory seemed to be disproved by the researches of Nuttall and others, who showed that blood serum freed from corpuscular elements has germicidal properties. However, McClintock and I have shown that the germicidal substance in blood serum is a nuclein, and certainly the most probable source of this nuclein found in blood serum is the polynuclear white corpuscle. Now, the administration of nuclein increases these corpuscles. This is a point which my colleague, Dr. Huber, has kindly consented to investigate, and at present I will give only some general statements of the results which he has thus far reached. These may be condensed as follows:

1. The subcutaneous injection of nuclein increases the number of white blood corpuscles.

2. This increase occurs in both healthy and tuberculous persons.

3. With like quantities of nuclein injected, the increase varies with the person. It may be slight, and it may be three-fold.

4. This increase occurs principally in the polynuclear cells.

It is evident as a rule as soon as the third hour after treatment and generally disappears after the forty-eighth hour.

If the nucleins shall prove of any value in the treatment of tuberculosis, it will most probably be due to the fact that they increase the polynuclear white corpuscles.

I have been using nuclein in the treatment of tuberculosis in man since May 1, 1893. At first I employed only yeast nuclein, but now I am using spleen nuclein in some cases. When sufficient evidence has been obtained either to reject or recommend the treatment, the results will be communicated to the profession. I may say, however, that only in initial cases may we expect any benefit, and even in regard to these I must have more abundant material and a longer experience before I can speak with any certainty.

[1] The fact that nucleins from different sources affect one germ more seriously than another is one which promises to be of importance in the pursuit of these investigations.

ORIGINAL ARTICLES.

REPORT OF CASES OF ABDOMINAL SECTION AT ROBINWOOD HOSPITAL FOR WOMEN, FROM MAY 1, 1893, TO JAN. 1, 1894.

Read before the Detroit Gynecological Society, April 4, 1894.

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It is to be regretted that the entire profession has not yet realized the importance of timely operation in destructive disease of the abdomen and pelvis. By *timely* is meant as soon as operation is clearly indicated. To delay, until the surrounding parts have become involved, or until perforation of some of the viscera has occurred may be mainly attributed the fatal and sometimes imperfect results after operation. The question of palliation and delay in cases of ovarian cyst has long since been settled, not only in the minds of specialists, but also in the minds of the general surgeon and practitioner. Why should any better results be expected from palliation in cases of ovarian abscess, destructive inflammation of the tubes and ectopic pregnancy?

Dr. Chas. P. Noble in his interesting report on "Abdominal Surgery at the Kensington Hospital for Women," very truly says that, "without operation it is only by accident that such cases ever become well, and those who do become well run many risks which could be avoided by prompt operation—risks far exceeding those of the operative treatment." Given a case in which an operation is necessary, nothing can be gained by delay and much may be lost. *Dernier ressort* operations are usually unsatisfactory operations and very frequently fatal. Every fatal result is a reproach to the profession, and especially to gynecologists. While operation for abdominal and pelvic disease should be held in reserve, like every other remedy it should be applied while there is yet hope. The proper time to operate is not easy to determine in all cases. Every case is peculiar in itself, and treatment can only be determined by the condition and peculiarity in each case. Tubo-ovarian inflammation coëxisting with chronic endometritis may, and sometimes does get well after curettage, irrigation and drainage, but if disorganization and suppuration have occurred, as can usually be told by the clinical history and physical signs, any other treatment than total extirpation of those diseased organs is irrational and therefore unscientific. The existing sentiment against removal of the uterine appendages is entirely right, if applied to healthy appendages, which have been and are yet needlessly removed, only by unskilled and untrained hands; but when those organs become so disintegrated and disorganized by disease that the health and life of the patient are in constant peril, that sentiment that is so solicitous about "unsexing" and "mutilating" women and would permit them to die on that account is entirely wrong. Only those who occupy an advanced position have ever practiced or sanctioned the removal of the uterine appendages, except in cases in which function and therefore structure have already been destroyed by disease. Celiotomy is clearly indicated in all such cases, and no other treatment will do the slightest good.

As will be seen in the following report, the chances for recovery in the two fatal cases would have been much better had the operation been done sooner.

The Robinwood Hospital for Women began its career May 1, 1893. It was built and equipped for the care and treatment of women afflicted with diseases peculiar to their sex. Its foundation principle is the well-known fact that such diseases can be more successfully dealt with in a special hospital. The following report emphasizes this fact as applied to abdominal and pelvic disease. Other gynecological cases have been treated, but are excluded from this report. The abdominal cases have been very interesting and the satisfactory results obtained will be seen by a glance at the following table. A number of these cases have been considered of sufficient interest to justify a report in detail:

No.	Date of Operation.	Residence.	Age.	Social Condition.	Occupation.	Medical Attendant.	Disease.	Result.
1	May 2	Toledo, Ohio.	36	Single.	Dressmaker.	Dr. Jno. Gardner.	Fibro-cystic degeneration of ovaries—small myoma.	Recovery.
2	" 5	Bryan, Ohio.	25	Single.	Domestic.	Dr. S. Belle Craver.	Chronic ovaritis and salpingitis.	Recovery.
3	" 13	Dupont, Ohio.	28	Married.	Housewife.	Dr. M. M. Hixon.	Large ovarian abscess.	Death.
4	" 24	Toledo, Ohio.	23	Married.	Housewife.	Dr. C. A. Kirkley.	Double pyosalpinx.	Recovery.
5	Jan. 12	Auburndale.	38	Married.	Housewife.	Dr. C. A. Kirkley.	Double pyosalpinx.	Recovery.
6	" 15	Lima, Ohio.	29	Married.	Housewife.	Dr. S. B. Hiner.	Double pyosalpinx.	Recovery.
7	" 20	Toledo.	51	Married.	Housewife.	Dr. C. L. Van Pelt.	Sub-peritoneal fibroid.	Recovery.
8	July 6	Toledo.	35	Married.	Housewife.	Dr. C. A. Kirkley.	Ovarian fibro cyst.	Recovery.
9	" 11	Toledo.	32	Married.	Housewife.	Dr. G. A. Hollister.	Double pyosalpinx.	Recovery.
10	" 14	Toledo.	19	Single.	Dressmaker.	Dr. G. A. Hollister.	Infantile uterus—tubo-ovarian degeneration.	Recovery.
11	" 18	Toledo.	28	Married.	Housewife.	Dr. C. A. Kirkley.	Double tubo-ovarian abscess.	Recovery.
12	" 4	Archbold, Ohio.	20	Single.	Seamstress.	Dr. A. J. Murbach.	Hystero epilepsy—chronic ovaritis.	Recovery.
13	" 31	Toledo.	23	Widow.	Waitress.	Dr. C. A. Kirkley.	Double pyosalpinx.	Recovery.
14	Aug. 8	Lima, Ohio.	37	Married.	Housewife.	Dr. R. E. Jones.	Fibro-cystic myoma.	Recovery.
15	" 10	E. Toledo.	29	Married.	Housewife.	Dr. C. A. Kirkley.	Ovarian cystoma.	Recovery.
16	" 28	Toledo.	29	Widow.	Housek'per.	Dr. C. A. Kirkley.	Double pyosalpinx.	Recovery.
17	Oct. 3	Toledo.	32	Married.	Housewife.	Dr. C. A. Kirkley.	Suppurating myoma.	Recovery.
18	" 31	Toledo.	25	Married.	Housewife.	Dr. C. A. Kirkley.	Ovarian cyst.	Recovery.
19	Nov. 7	Toledo.	22	Married.	Housewife.	Dr. S. W. Beckwith.	Large pyosalpinx.	Death.
20	" 20	Toledo.	50	Married.	Housewife.	Dr. W. C. Chapman.	Ovarian cyst.	Recovery.
21	" 26	Toledo.	34	Married.	Housewife.	Dr. G. A. Hollister.	Ovarian fibro-cyst.	Recovery.
22	" 29	Asheville, N. C.	42	Married.	Housewife.	Dr. Karl von Ruck.	Pyosalpinx.	Recovery.
23	Dec. 26	Toledo.	29	Married.	Housewife.	Dr. C. A. Kirkley.	Pyosalpinx.	Recovery.

Case 3.—Came under Dr. Hixon's observation in December, 1892. She was then greatly emaciated and had been discharging pus per rectum for some time. Dr. Hixon at once recognized the condition of things, and advised immediate operation which was declined. When the patient came to Robinwood on May 4, 1893, her condition was anything but encouraging. She was extremely emaciated, abdomen tympanic, temperature 102, and pulse 120. She has had a miscarriage produced a year or more ago, and dated her illness from that time. The dangers of abdominal section were clearly stated to her but she readily consented to the operation. On opening the abdo-

men, adhesions were encountered in every direction and had to be separated with great care, owing to the danger of injury to surrounding structures. Owing to the disorganized condition of the parts within the pelvis, and the extent of the opening into the rectum, its closure was not attempted. The operation was not prolonged; there was very little hemorrhage and very little shock. The abscess contained three or four ounces of pus. Irrigation was thoroughly employed and drain tube inserted. There was slight secondary hemorrhage which soon ceased, but in the exhausted condition of the patient considerable prostration followed. Saline infusion was resorted to twice during the night with apparent temporary benefit. On the following day the condition had slightly improved, the patient expressing herself as feeling much better. The temperature never rose above 99 nor the pulse above 120, except immediately after the operation when the pulse was 160. Death occurred from exhaustion on the fifth day. This case forcibly teaches the danger in delay. Had she consented to an operation when urged by Dr. Hixon her life could, no doubt, have been saved.

Case 10—Was one of unusual interest. The patient was not at all emaciated, but a decided pallor and a countenance expressive of pain clearly told of her illness. She had not been free from pain and tenderness in the lower part of the abdomen for four years. When 15 years old, she had a slight show, the first and only time, followed by a seven months illness. At intervals of four weeks since that age, "cramps" have come on lasting two weeks unless relieved by something. There is constant leucorrhea, albuminous in character, and constant headache. The body of the uterus could not be felt at all though the cervix was normal, and a distinctly fluctuating mass could be felt in the cul-de-sac of Douglas. She had been treated constantly for a year and a half, mainly by galvanism, with a view as she said, of bringing on her menses, before she applied to Dr. Hollister who at once and very kindly referred her to me. The diagnosis was infantile uterus with diseased adnexæ—probably hemato-salpinx. Some kind of an operation had been done about a year ago—presumably divulsion. Abdominal section revealed hydrosalpinx and a broad ligament cyst as large as a goose egg. Whether appendages were naturally developed could not be told, as they were a degenerated mass on either side, as large as a small orange. The body of the uterus was no larger than the end of one's thumb, and about an inch in length. At the end of three months the patient removed to another State and up to that time there had been no return of pain.

Case 11.—Was under observation for about six months prior to operation. She was married in 1881, and stated that she had been pregnant twice a year for the last twelve years. The condition in which her appendages were found would make that statement, to say the least, improbable. The menses would be missed, she states, in the spring and again in the fall, at which times she would apply to so-called doctors who would insert "something" into the uterus, the menses soon after reappearing. She evidently considered herself pregnant at these times and deliberately and systematically had abortion produced. She was very frail, much emaciated and very anemic. She was never free from pain. The uterus was enlarged, movable and tender to the touch. The menses have always been regular; began when she was 16 years old; have been very profuse for the last four or five years, and attended with great suffering. She has had several attacks of pelvic peritonitis. Her ill health began about nine years ago, and for the last four or five years she has had "local treatment for womb trouble." Each tube and ovary contained at least an ounce of pus. Recovery was uninterrupted, the temperature never rising above 101 nor the pulse above 99.

Case 14—Presented some interesting features. The patient had been under the care of my friend, Dr. R. E. Jones, of Gomer, Ohio, who kindly referred her to me. She was the mother of one child now 14 years old. Though very much emaciated, she had not an unhealthy appearance. She had a goitre of considerable size which had given her no trouble for the last few years. There was slight edema in the left leg and foot. The abdomen was very much enlarged; dimensions as follows:

Largest circumference (at umbilicus)	41	inches.
Ensiform cartilage to umbilicus	10.5	"
Umbilicus to symphysis pubis	12	"
Right, A. S. S. of ilium to umbilicus	11	"
Left, A. S. S. of ilium to umbilicus	11.5	"

The veins were enlarged; the lower part of the abdomen was hard and quite tender, and the upper part distinctly fluctuated. The uterine cavity measured 4.5 inches. The cervix was apparently flexed at the os internum and the os externum was patulous. The menses had been somewhat irregular during the last three years but always normal in quantity and began at the age of 13. Specific gravity of urine was 1.018, diminished in quantity and contained 5 per cent. albumen. Patient had never been seriously ill, though for the last seven or eight years her health had not been as good as usual. She first noticed the abdominal enlargement, which for the last three months has been very rapid, in December, 1892.

The operation was especially undertaken to relieve the patient of the large accumulation of fluid which was supposed to be ascitic. Instead, however, it was contained within a thin-walled cyst springing from the summit of the solid and degenerated mass within the lower part of the abdomen and pelvis; after careful examination of which, total extirpation was decided upon. The incision was extended from the umbilicus to within an inch of the os pubis. Dense adhesive bands were found in every direction, and enormous blood vessels were tied and divided as the work of removal progressed. Each ovary was fibrocystic, as large as a goose egg, and the tubes contained two to three ounces of serum, all of which were intimately connected with the degenerated uterus. The cyst springing from the top of the mass contained about two gallons of clear fluid (sixteen pounds). The lowest estimate of the solid mass removed was twenty-five pounds. A low estimate of the weight of the tumor would be forty pounds.

A description of the tumor may not be uninteresting: Springing by a pedicle as thick as a woman's wrist from the summit of the tumor near the origin of the cyst was a liver-sized, liver-colored, and liver-shaped fibrous mass—extending over the entire anterior surface of the tumor—which was first removed. A humorous assistant observed: "You have got her liver now." There then remained three distinct portions which were removed *en masse*. The central portion was the degenerated uterus, covered with nodules varying in size. Its degeneration extended

toward the right and left, forming equally large portions, thus presenting a central and two equally large lateral masses, and still all in one. The right mass was soft and the left hard. The tumor, as a whole, is an example of the cystic, fibro-cystic, fibrous, and edematous myoma; certainly unique in my experience.

An operative peculiarity is worthy of mention, and the excuse for its adoption was the collapsed condition of the patient, which made increased haste to complete the operation necessary, as she had already been under anesthesia three-quarters of an hour. The degeneration had almost obliterated the cervix, thus making abdominal fixation impracticable. Time was too precious to attempt the ideal method—total extirpation. The Staffordshire knot was therefore applied to the short supravaginal portion of the cervix. This may not have been in accord with good surgical principles and may have been unnecessary, as there was not the slightest hemorrhage from the stump. The value of a few minutes' time under such circumstances can hardly be overestimated. This defect in the technique gave me no little uneasiness afterwards.

The shock was terrible. Whisky was given hypodermatically every few minutes during the latter part of operation, and when put to bed she was given $\frac{1}{30}$ grain of strychnia and $\frac{1}{4}$ grain of morphia. She rallied well, however; the pulse varied from 116 to 130, and the temperature from 99 to 102 until the beginning of the fourth day, when she had a violent chill, the temperature rising to 105 immediately afterward and the pulse to 150. The abdominal incision was separated to the peritoneum, which having entirely united, the abdomen was not reopened. Fluctuation could be distinctly felt in the cul-de-sac. The os was sufficiently patulous to admit a good-sized rubber drain tube which was passed through it into the pelvic cavity. A free discharge of pus followed and in four hours the temperature had fallen to 101 and the pulse to 130. From this time on, recovery was uninterrupted, and she left the Hospital in five weeks after the operation in excellent condition.

This desperate case points out the propriety of at least explorative operation in such cases, and the possibilities of abdominal surgery, though it is doubtful if even an exploration would have been made in this case had not the patient's sufferings been so great from the accumulated fluid.

Case 17.—Came under observation Sept. 27, 1893. She was markedly septic and had had two profuse uterine hemorrhages within the last two months. The lower part of the abdomen was slightly enlarged, produced by the enlarged, tender and movable uterus. The patient had never been pregnant. The menses had been irregular for the last seven months, with dysmenorrhea, and a purulent offensive leucorrhea had been constantly present. Irregular chills had annoyed her for the last few weeks. Pulse 90, temperature 100. The first sign of ill health was about a year ago, when she discovered a "lump" in her abdomen on the right side and very low down. The striking symptoms were chills followed by fever; extreme pallor and emaciation; pain, tenderness, hemorrhage and an offensive purulent leucorrhea.

Hysterectomy was performed Oct. 3, 1893. The cervix made a good pedicle, and was therefore secured in the lower angle of the incision. The anterior and right lateral wall of the tumor was a suppurating mass, and its estimated weight was four pounds. The highest temperature reached was 103 on the second day. Recovery uneventful.

Case 19.—Came under observation Oct. 31, 1893. Dark complexion, very anemic, considerably emaciated, never pregnant. More or less fever for last two months; normal temperature at this time; the abdomen was about as large as it would have been had she been five months pregnant. The uterus was situated low down in the pelvis, fixed and three and one-half inches deep. The cervix was slightly hypertrophied. The menses reappeared regularly, have been profuse the last three months, amounting to severe hemorrhage, succeeded by an offensive purulent leucorrhea. There was constant pain and tenderness in the lower part of the abdomen on the right side. The abdominal enlargement was symmetrical. The clinical history, confirmed by the physical signs, would seem to indicate that a suppurating myoma was probably the pathologic condition. On opening the abdomen, the large, red and fluctuating tumor was exposed. A trochar was thrust into it, and more than two quarts of pus drawn off. The sac consisting mainly of the right tube and degenerated ovary were enucleated from their bed within the pelvis and ligated off. The left ovary was as large as a hen's egg, and undergoing cystic degeneration. The pus tumor enveloped the fundus and body of the uterus in such a way as to completely fix that organ. The pelvic cavity also contained a parovarian cyst as large as a hen's egg. The symmetrically enlarged and hard abdomen, the fixed uterus and the hemorrhage were the misleading symptoms. Not the slightest fluctuation could be detected before opening the abdomen. Death occurred on the fifth day from septic peritonitis, the infection, no doubt, occurring during the operation, though the irrigation was thorough and though not more than half a drachm of pus escaped within the pelvic cavity.

My acknowledgments are especially due Drs. Collamore and Van Pelt who have so kindly assisted me in most of these operations, also Drs. Reed, Chapman, Tracy, Hollister, Donnelly, Bodman, Gardner, Cherry and Craver. To the gentlemen who have so kindly referred cases to Robinwood Hospital for treatment, I extend my sincere thanks. Without their friendly support much less would have been accomplished.

MIND A PRODUCT OF BRAIN ENERGY.

BY CHARLES J. LEWIS, M.D.
CHICAGO.

"What distinguishes the practice of the medical profession, in treating the diseases and repairing the injuries of the *genus homo*, from that of the veterinarian? . . . . It is the *worth* of man, he being a rational being, the other being an animal destitute of reason. . . . . I would further define the mind as the superintending, the guiding power of corporeal manifestations; it directs all the movements of the body, over which it has complete control; it is to the body what the engineer is to the steam engine, the body being but a mere machine suited to develop the operations of the mind, and preserved and kept in order by the organic functions."

The above question, with its answer in two parts,

is from an article by Dr. John M. Farrington, in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION of March 31, 1894.

Herein, the Doctor utters words to the effect that members of the *genus homo* are intellectually superior to members of the *genus equus*. This is freely admitted to be a statement of facts in the case as to their differences in intelligence *now*. But is he sure, as he says in the body of this long article, that the difference is due to man's brain possessing an inherent power to employ the senses to form ideas, in a manner more advantageous than would the same organs, other means being equal, in the horse? We have evidence that the horse "remembers, combines and reasons."

Let us go back into pre-historic times. In those dull, dim days man and horse, we will assume, were inhabitants of the same fauna. We will also assume though, that man had slightly the larger brain, but that his organism in none of its parts was better adapted for making a record of his experiences—such as naming things, recording sentiments and the like, than was the organism of the horse. Although a larger brain is granted to man, if he could not make a better use of it for perfecting devices for recording his solved problems—wrought-out facts—than was possible for the horse, it is at once apparent that both man and horse would travel down the ages shoulder to shoulder at the same rate of speed, in the acquirement of knowledge.

Man, with a hand armed with thumb and fingers, can make a *record* of his ideas which can be more easily deciphered and appropriated as personal experiences, than could be any *new experiences* by those who succeed him. New experiences require many verifications before admittance into the realm of facts. The horse not having such a limb-instrument as the hand, was and still is incapable of making a record which will be interpretable after the death of the individual experiencing. Thus each oncoming generation of the horse species makes the same round after round of experiences, without an appreciable advancement, simply because their ancestors left no intelligently recorded heritage, either in the description of their enforced slavedom under man or of a stock of useful knowledge. The trust the horse hands down to its succeeding generations we herein show to be exceeding small, thin and easily rusted-out of tradition's memory. Not any smaller, thinner nor more easily rusted-out heritage, however, than would be the trust of a *handless, toeless, and a recordless humanity*. This points to another rendering of the following by the Doctor: "That there is a union of the mind with the body, and he who ignores the mind of man in treating his diseases may well be classed with the veterinarian."

The second part of the answer, "that the mind is to the body, what the engineer is to the steam engine," we are hardly prepared to hear as coming from a member of the medical profession of to-day. However, since I am not hitherto responsible for the medical training of any member of my chosen profession, I cheerfully grant the widest scope of opinion. If a living human being is identical with a dead steam engine which can not modify its output of force, then a comparison between the two is permissible. If not, then not. A steam engine is constructed in such a manner that when a part is worn out, it can be replaced by a new one. But can a hopelessly cirrhosed liver, or an opaque cornea, or a single ganglion-cell in that part of the cerebral cortex known as the granular formation of Meynert, after having lost their function be restored to usefulness again? To this there can be but one answer. The difference, then, between a machine and an organism, lies in the fact that the latter can modify or wholly inhibit an action stimulated by a sensation. But when the steam in the steam-chest of an engine receives an impression from the engineer, it has but one thing to do, namely, to move the piston which turns the drive wheel. It has no choice; it can not assume the position—I may or I may not move the piston. From this we learn that there is nothing gained by comparing things that are clearly dissimilar in their make-up and uses.

All human thought points to the fact that non-living matter yields a different expression from matter which is alive. From this we have accustomed ourselves to declare that there is a difference in the make-up and uses of the two kinds of matter, whether this is so in their ultimate constituent parts or not. To strengthen this diverging view, we need but consult modern biology. H. J. Campbell (1892), makes the statement that the embryonic cells of a fertilized ovum coalesce into three layers; the epiblast (external layer), hypoblast (internal layer), and mesoblast (middle layer). These membranes continuing to develop from food sources, finally enlarge so as to form all the complicated structure of an adult.

Without enumerating them, we will assume that the tissues having their origin in the mesoblast and hypoblast will be coördinate in development with those from the epiblast.

The embryonic membrane—the epiblast—is the outer of the three layers. It is also called ectoderm, and neuro-epithelial layer. This layer is of special interest to the physiologic psychologist, in that from it is developed the nervous and some other tissues of the body. And there is another point of interest connected with this tissue, in the relation which it holds to the others, as one of its names indicates—namely, neuro-epithelium. By this we see that the outside of the body—the epidermis—is formed from this layer, making thereby for the outside of the body a membrane which has its rise in common with the nervous tissue. Hereby the body has sensory tissue overlying its entire outside, fitting it for sensing environing motions from any possible direction.

There is something remarkable in the statement that the epidermis which covers the body is of the epiblast. Not in the fact of this fact; but in the failure of psychologists hitherto, to fully comprehend the advantages accruing to the animal organism therefrom. In the oncoming of animal life, sensibility made its first appearance in the skin as a special sense. Now by adding to this a clothing—*epithelium*—derived from a tissue in common with the nervous system, every spot of the outside of the body becomes a living sentinel to give information of impingement by environing objects. When these would portend harm, the organism could choose between contending with them and fleeing to a place of safety; or, if pleasurable, it could remain in quiet and enjoy them.

The bodies of all living beings are cellular, and divided into two chief classes—the protozoa and metazoa. An amœba is a single-celled animal, and of the protozoa, while man is of many cells—metazoa.

After we have observed and named every cell and every cell colony in the human embryo, and having become conversant with the action of these protoplasmic bodies in the adult, whether singly as in the protozoa, or in a colony as in the human eye, then, and not until then, will we be able to divest ourselves of the training we have had in mythological lore. A part of this lore is the very prevalent notion that mind, at least in part, has some mysterious origin other than products of vibratory or molecular motions proceeding from the five end-organs into the brain. I do not deprecate the efforts that men have made in the past, but shall simply aim at bringing into view the methods of the past, and contrast them with those of the present.

As to voice: Voice is a sound symbol produced by the organs of speech, interpretable by the center for hearing. The noises made by mammals lower than man by their vocal organs are not regarded by man as speech, on the ground of not being comprehended by him as uttered symbols of ideas. The vocal organs in man and all mammals are essentially the same, while the expression of speech is dependent upon the process of ideation and perception.

The making of these *uttered* symbols of ideas, comprehendable by the visual center of the cerebral cortex, has been effected by a system of graphic characters called letters. Presumably, man's first record of an idea was through depicting the object it represented by some such crude procedure as marking its form with a rod in the sands of the seashore. The stimulus to this might have been the beholding of one's image in the still water near by. But what could be the stimulus which ultimated in representing a sound by a symbol, such for instance as a letter of the alphabet? The *comprehension* of this momentous act marked the initial point of advancement which secured for man an advantage in the race for the acquisition of power over all others of the animal kingdom. Possibly the stimulus might have been a struggle between two individuals of different clans who, though having different languages, nevertheless attempted to understand each other's speech. One being resourceful, attempted to make known to the other his ideas by marking in sand or dust, or some impressionable surface which chanced to be at hand, a picture of some object which might be familiar to both.

Upon comprehending that sounds which were cognizable by the center of hearing could be represented by names recognizable by the center of vision, nothing could be more obvious than that out of man's natural curiosity a few individuals in each generation would become devoted to the work of correcting, improving and enlarging the processes of making an intelligent record of speech. To this end, man soon discovered that his hands were very important factors.

The monkeys—quadrumana—though *four*-handed, have not as yet, awakened to their potentialities in the direction of using their fore-limbs for making a record of ideas which were understandable by succeeding generations. Owing to this, their ideas are few and necessarily of the simplest character. After one of the Simian tribes has obtained only a faintly comprehended notion that he could represent a speech-symbol in such a manner as to have it typify, as though made for the eye, presently others would become associated with him in its development, and the process thus inaugurated would be a substantial beginning of an era of progress. Why it is that some individual of the quadrumana has not taken this initial step of advancement, as well as man, I leave for the future to answer.

For obvious reasons much of the acumen of our forefathers was expended in the direction of establishing language; that is, in forming or agreeing upon words or names for the various objects which cast reflection upon their sense-organs. The five senses are also called end-organs.

Owing to the undeveloped state of the art of making a record of names of things observed in earlier times, success in this direction did not come before printing was invented. This made it possible for the dissemination among the people of all names agreed upon. This stimulated the scholars everywhere to a more constant and systematized effort to collate all fact-words known, and this in turn brought into existence a class of experienced workers in collating fact-words into groups or special departments of science. Among these I might mention mathematics, logic and more recently, the physiology of the brain. Many words, among them sun, moon, stars, day, night, water, man, animal, became permanent through tradition. But for all newly coined words tradition was a very tedious method of giving them permanency. Among objects or supposed objects having names given them in early times, I might mention alchemy, necromancy, witchcraft, soul, spirit, God, mind. This class of words are aptly said to belong to a class of objects which is supposititious when viewed in their commonly supposed meaning. And rightly, too, for it is undetermined, even in our time, whether any reflected motion passes from them to form by impingement an image upon any one of our five end-organs. This fully accounts for the vague and varied opinions held concerning their import.

As stated above, since we now have a quick means —the press—of disseminating the names of things, there has arisen among us a widespread desire to memorize them, *i. e.*, to increase our knowledge. Students find that they are aided very materially in obtaining more knowledge of things but partially understood, by asking questions and by comparing the new answers with the old.

A, B and C, are persons conversing. A asks B what mind is. B replies that "the hand does not feel, the tongue does not taste, nor the eye see, but the mind through the medium of the organs and the brain feels, tastes and sees." Turning to C, he asks the same question, and C answering, says: "Mind is the sum total of one's comprehended impressions." In B's answer we have an affirmation that mind is an entity—has an independent existence of its own, and that the end-organs and brain are only incidental and very unimportant appurtenances. While C declares that mind has arisen in its totality from sense-impressions that have gone to the cerebral cortex and by it cerebrated into ideas which are comprehended. To comprehend a thing is to differentiate it from all other things. Can B be sure that he has differentiated mind from sense-organ and brain? Unless he is certain that he has so differentiated, obviously he is affirming without knowledge.

C demands a hearing for his statement on the ground of the preposterousness of having mind in a being that was devoid from birth of even a faintest trace of either of the five senses, thus making it im-

possible for it to experience a single sensation. That is, that it could neither smell, taste, hear, see nor feel. Manifestly, a being of this simple description would be less complex than the sensitive plant. Yea! it would be a *no-sense* being. Having no organs to sense wave-motions reflected from objects, what the premise for affirming that such an organism can give forth expressions that are indisputably sequences of ideation?

These statements permit the declaration, that we have ground for an enduring hope in the progressive character of humanitarianism, as expressed by those who maintain that the raw material out of which ideas are made are the *motion-things* we call sense-impressions. And further, that this unitary font of human intellection, has already been placed upon a permanent basis. Nevertheless, the student-teacher should ever evince a hearty zeal in teaching his pupils, among other things, that the senses of taste and touch are stimulated only by objects in actual contact, while the senses of smell, of sight and hearing are exercised only by reflections from objects that are always out of impact; *i.e.*, at a distance. Herein Ziehen is right in saying that it is from sense-impressions that the brain can build up ideas, to which I will add, that it is from these ideas being regarded as a whole, we have what we are pleased to call mind.

The hope of the race is now, as heretofore, in the student who is ever on the alert and questions the position of state, of church and of philosophy, as to their individual worth; if either makes for an enlarged personal freedom it shall be fostered; but if either shall be found to retard personal advancement, it, through neglect shall be permitted to enter upon the period of senile atrophy.

The earth—man's home—is for the enlightened. Only they who are loyal to this spirit are destined to survive. They alone have in them the functional activities of organic life. A human being who pits his organic life against his spiritual, is an anomaly, and one or the other of these opposing forces will sooner or later yield to its unfitness.

The argus-eyed student is always conservative and patient, but ere long physiology's shrill voice will call upon the differentiators of things—builders of facts—to join their forces, and all the obstacles to human betterment growing out of the mythological aspect of mind, however formidable, will go down before the advance of an enlightened people.

Yes, mind *is* a product of brain energy.

Out of the myriad observations made by myself and others of sensations after having been modified by cerebral tissues, I have synthetized their ultimates into one sentence, namely,

Mind is the sum-total of one's comprehended impressions.

IMMEDIATE CAPSULOTOMY FOLLOWING THE REMOVAL OF CATARACT.

Read before the Medical Society of the State of Pennsylvania, May 17, 1894.

BY L. WEBSTER FOX, M.D.

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All ophthalmic surgeons endeavor to obtain perfect vision after the removal of a cataract. On account of its prevalence, the loss of one of the most valued of the senses, and the restoration to vision by a bloodless and painless operation have concurred to render this operation an object of the highest attention to surgeons; and the progress of improvement in the operation has been commensurate with the advances made in surgery elsewhere in the economy. Unfortunately, with all our skill and knowledge, success does not always follow the removal of an opaque lens. The many contingencies incident to the healing of the wound, the distortion of the cornea, the subsequent change in the media caused by iritis, or a thickening of the posterior capsule—one or all of these factors play a very important rôle in the subsequent restoration to vision.

The opaque lens, with its capsule, obstructs the vision, causing blindness of the patient. To remove this obstruction requires considerable dexterity; to restore vision, absolute cleanliness and most careful after treatment. The most disheartening factor in a cataract operation is that sooner or later the posterior capsule thickens, and again dimness of vision follows; the lessening of the sight is not so great as it was before the removal of the lens, but still the patient is debarred the comfort of reading, writing, or attending to business matters in which it is necessary to have perfect vision. It is to prevent this latter change that I advocate the splitting or parting of the posterior capsule at the time of the primal operation.

Having had the opportunity of following many operators, good, bad and indifferent, and noting the after results, I frequently saw excellent vision follow bungling manipulation. The surgeons did not possess that delicate sense of touch so essential in making the corneal incision, snipping the iris, lacerating the anterior capsule, and delivering the lens. They lost courage, or their hand became so tremulous after they had ruptured the capsule that the operation would have been a failure had they not taken a lens scoop in hand, entered the eye, and fished out the cataract and its capsule, with always more or less loss of vitreous. With very great care in the after-treatment many of these patients would recover, and in the majority of cases which did recover no capsule interfered with their visual acuity. It was witnessing such operations that led me to think that a parallel process carried out, however, on more delicate operative lines, at the time of the primary operation, would still lessen the dangers that such harsh measures would be sure to excite.

The ancient method of removing cataracts from the direct line of vision was by *couching;* that is, passing a delicate needle through the sclerotic coat on the temporal side of the eye-ball, posterior to the ciliary bodies; pressing it forward and into the crystalline lens. Then, by a backward sweep of the point of the needle, lens and capsule were torn from their position, and deposited down and out in the vitreous chamber. Celsus, the celebrated Roman physician, who lived at or about the commencement of the Christian era, describes, and is generally esteemed the father of this operation. It was not very satisfactory in its results, according to the data obtainable from the earlier writers. Fabricius, who flourished in 1600, speaks with great despondency of this operation; later on, Hiester, 1711 says: "Though the operation is easy to be performed, the success is so very precarious that among a great number of persons, couched by the most distinguished oculists, very few met with the desired

results; and upon the vast number of patients upon whom the celebrated itinerant Taylor operated, not one in a hundred recovered his sight." He further says that in several different places he saw many miserable objects in tormenting pain, arising from inflammation consequent upon the operation, and that of those who regained their vision, there was scarcely one in ten who did not sooner or later lose it again. For eighteen hundred years this puncturing of the eye-ball, with its most deplorable results, was the only method held out to the blind. It was the outgrowth of an accident which gave birth to the rival plan of extracting the opaque lens through an incision of the transparent cornea. It was the failure to remove a cataract which had escaped into the anterior chamber by couching, that led M. Mery to recommend, in the year 1707, the practice of extraction in all other cases of this disease. It was left, however, for Daviel, the celebrated surgeon of Paris, 1745, to bring forward this method as one infinitely less dangerous than couching. From that day to this the incision is made through the cornea, or along its margin, and the percentage of loss is to-day what the gain of vision was one hundred and fifty years ago.

PRELIMINARY TREATMENT ESSENTIAL IN CATARACT OPERATIONS.

I deem it of the greatest importance to interrogate all cataract patients presenting themselves for an operation, as to their general habits and family history, and to make a careful examination of the urine, restricting meat diet and increasing a vegetable one; while last but not least, placing the patient, one week before the operation, on the mixed treatment, also paying particular attention to bathing both eyes with a boracic solution containing sulpho-carbolate of zinc; examining the eyelashes and particularly the nasal cavities. If any catarrhal affections are found in these cavities it is of paramount importance that they receive the proper treatment before an operation is performed. The day before the operation, the patient is given a warm bath and a saline purgative, kept in bed, and his face washed with Castile soap and water, then washing the skin around the eye to be operated upon with ether, following this again with a 1-5000 solution of corrosive sublimate after a German method (Schweigger).

The reason I call attention to these minute details is that the patient may suffer from some defect which would not affect an eye in a comparatively healthy state, but might exercise an extremely pernicious influence on the eye after the irritability following the operation. The effect to be dreaded is inflammation, and therefore every measure calculated to prevent its occurrence must be taken. There are still a few ophthalmic surgeons who think it quite unnecessary to take these preliminary precautions, but happily the number is growing less year by year.

At the time of the operation still greater precautions are taken; the patient's face, neck and mouth are thoroughly cleansed, clean underclothing, over which, and fitting close to the neck, a sterilized sheet is wrapped, head bandaged in a sterilized towel, and the eye irrigated with an aseptic fluid, as hot as the patient can bear it. The instruments are also sterilized; all fluids, such as atropin and cocain, are sterilized in a Llewellen flask. The operation is performed then in the usual manner.

After the delivery of the lens (cataract) and all cortical matter is washed out of the anterior chamber, I proceed with the rupturing of the posterior capsule, —the subject of my paper. The instrument used is a gold enameled hook, made as delicately as is consistent with keeping its shape. It is of malleable steel, so that it may be bent to any angle which I find is convenient, especially when the eye of the patient lies deep in the orbit. The hook is passed into the anterior chamber, and behind the lower pupillary margin of the iris, on its flat side. It is then rotated backward, hooked into the capsule, drawn gently upward to the mouth of the incision, rotated on its flat side again, and then taken out of the chamber. By this means, the capsule is torn and the vitreous presses forward between the rent. Very little or no vitreous shows at the mouth of the wound. If it does, I snip it off.

When the operation is performed after the simple method (without iridectomy), the same manipulation is carried on with but one exception; and that is, the line of incision is not so long. The ophthalmostat is removed, and the eye-ball again irrigated with the hydrostatic eye-douche, followed by dropping one drop of sterilized atropia solution into the eye; the lids closed and thickly anointed with vaselin, which has been sterilized by boiling; over this specially devised eye-pads, which have also been sterilized by heat, held in place by adhesive strips, which keep the bandages securely fixed, permitting the patient to change his position in bed as often as is desirable. In twenty-four hours the dressings are removed, and both eyes bathed with warm water and irrigated with the sulpho-carbolate solution, another drop of atropia applied, and similar eye-pads adjusted with as much care as at the primal operation; and so continued from day to day until the eye is out of danger.

Is this a new operation? Some of the older writers of fifty years ago hint at the removal of the lens and its capsule, but they are not explicit enough to say that they did so. The only authority that I can find saying so positively, is Richard Middlemore, who, on page 138, Vol. ii, in his great work on "Diseases of the Eye," published in 1835, after speaking of the removal of the lens, when the pupil is not clear, on account of the thickening of the posterior capsule or the hyaloid membrane, says: "In every such instance, I have found it absolutely essential to the successful result of the case, to lacerate the posterior capsule and hyaloid membrane, and permit the escape of a portion of the vitreous humor." Coming nearer to our own day, I must say a few words about the distinguished surgeon who left his impress upon all who witnessed his wonderful skill as an operator. I have reference to the late Dr. Richard J. Levis, of this city. I have had the opportunity of examining quite a number of patients from whom cataracts were removed by this eminent surgeon. In nearly every instance the posterior capsule was evidently ruptured at the time of the primal operation. Whether this was a constant practice of Dr. Levis' I am unable to say, but I am sure he realized the importance of removing the posterior capsule at the time of the original operation. Pagenstecher, of Wiesbaden, is also an advocate of removing the lens and its capsule at one sitting. Hasner, another German ophthalmologist, is an advocate of this radical operation. It has recently come to me indirectly that Dr. Knapp,

of New York, is also lacerating the posterior capsule at the first operation.

Is the operation always successful? Laceration of the capsule alone does not prevent the hyaloid membrane from becoming slightly translucent. When this takes place, we may follow with a needle operation, and not provoke cyclitis by trying to tear a tough inelastic tissue.

I have been in the habit of performing this operation in alternating cases, for ten years. In those patients upon whom the operation was performed, I had to repeat a needle or capsulotomy (scissors) in about 15 per cent. of the cases; where it was not performed, in about 75 per cent. In the 15 per cent. of the cases where it did not succeed, I can only attribute it to a very thick posterior capsule, the vitreous receding after closing of the eye-ball, and thereby not keeping the capsule separated, but practically closing again. My experience has led me to believe that there is less danger of inflammation of the eye-ball in immediate capsulotomy, than in a subsequent operation.

The elder operators recognized the gravity of puncturing an eye-ball with a needle, and hailed with delight the improved method which completely revolutionized statistics. My own experience is fast leading me to adopt the cutting the cornea with a keratome and the incision of the capsule with a De Wecker's scissors, disregarding the needle altogether. With the preliminary treatment, and with the aseptic methods now employed, success is almost always assured, while with the treacherous needle almost every surgeon has had occasion to regret his *modus operandi* in more ways than one.

GASTRO-HYSTEROPEXY AS A SAFE AND RELIABLE MEANS OF CORRECTING PROLAPSUS AND RETRO-DISPLACEMENTS OF THE UTERUS.

BY YOUNG H. BOND, M.D.

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By far the most frequent displacements to which the uterus is liable are the downward and backward, namely, the various degrees of prolapsus, retroversion and retroflexion. But few if any troubles in the entire field of gynecology impose more of suffering and misery than is entailed by the inflammatory consequences of these affections. The reflex disturbances and the general ill-health that usually follow often lead to melancholia, hysteria, and even more pronounced insanity. In many instances the physical health is wrecked, and the functions of the various systems of the body are so perverted as to lead to a condition of general impairment of nutrition, which predisposes to the activity of any inherited tendency to disease.

I should like to emphasize the significance of the phrase, "inflammatory consequences," in this connection; for it is to these that symptoms are chiefly due; for example, pelvic peritonitis, with adhesions binding the uterus, ovaries, Fallopian tubes and sometimes the bladder in unnatural positions; ovaritis and salpingitis terminating in cystic or pus formations; endometritis, cystitis, chronic constipation, etc. I am aware that these conditions sometimes predispose to or bring about the displacements in question, but I am satisfied that in very many instances they stand in the relation of cause rather than of effect; and I am convinced from ante-mortem observations that the generally accepted idea that pelvic peritonitis with its train of evils is almost uniformly due to salpingitis incident to endometritis, is an error; that in reality its most frequent cause, apart from post-partum sepsis, is the pressure and consequent disturbed circulation, friction, etc., of the retroposed uterus.

I shall not presume, before this intelligent audience, to make anything like a systematic and complete presentation of the history, etiology, symptoms, physical signs and treatment of these affections; such an exposition would be appropriate before a class of students, or adapted to the ends of a text-book. The purpose that I have in view in presenting this paper is to emphasize a pathologic and etiologic condition shared by all of these affections in their initial departure, from which proceeds a common and major principle of treatment. However, the fact should not be lost sight of that the individual affections call for special means in addition to the principle of treatment common to them all.

In order that I may make myself understood, it will be necessary that I recall to your attention the fact that in the erect posture the pelvis is placed so obliquely with reference to the trunk that the axis of its inlet is represented by a line drawn from the umbilicus to the middle of the coccyx. Now, as you know, the axis of the uterus corresponds with that of the pelvic inlet; hence the normal position of the uterus is such that the force of intra-abdominal pressure, which is perpendicular, falls upon its posterior surface, and operates not only from above but from behind. Temporary departures from this relation of the position of the uterus and the direction of intra-abdominal pressure are constantly occurring, but they are only temporary and therefore physiologic.

Any permanent deviation from their nominal relation becomes at once the prominent determining etiologic factor in the production of either a prolapsus, a retroversion or a retroflexion, and the particular displacement is determined by the condition or state of integrity possessed by the suspensory supports, namely, the long, the broad and the utero-sacral ligaments, together with the restraining supports or pelvic floor.

Now it can be appreciated that however prominent a part may be played by a breach in the pelvic floor, or by impaired suspensory supports, in predisposing to and determining the character of the displacement, yet the salient fact remains that they are but contributory agencies in their accomplishment; they determine the direction of retreat of the uterus from the cause operating above, namely, intra-abdominal pressure. For example, if of the suspensory supports the round ligaments be alone principally elongated, and the walls of the uterus not wanting in tonicity, we will have retroversion. If to a similar state of the suspensory supports be superadded a flabby condition of the uterine walls then we will have retroversion plus retroflexion. If the round, the broad and the utero-sacral ligaments be elongated, and the integrity of the pelvic floor is wanting we will have prolapsus.

It will be perceived that under normal circum-

stances the force of intra-abdominal pressure, falling upon the posterior surface of the uterus, acts as an agent in maintaining the proper position of the uterus by forcing it in a direction in which descent is physically impossible; but under other circumstances it becomes the essential displacing factor. The round ligaments might be elongated, but if in spite of this circumstance the uterus did not become retroposed so as to permit other than its posterior surface to receive the force of intra-abdominal pressure, we should not have retroversion. If the walls of the uterus were ever so flabby they would not bend appreciably were it not for intra-abominal pressure. Were it not for the same pressure, lacerations of the pelvic floor would not result in loss of resiliency of the suspensory supports and consequent prolapsus.

Then the keystone in the arch of all these affections is found to be the same, viz., altered relation of the force of intra-abdominal pressure and that uterine surface to which it should be applied. The first step in prolapsus as respects the altered position of the uterus is a movement of the fundus backward, and the same is true of retroversion and of retroflexion; so that it must be apparent that defects in the uterine supports operate indirectly in accomplishing the displacements in question, and directly in determining their character. They permit a force which under normal circumstances serves to maintain the uterus in its proper position, to become the chief factor in the production of its displacement.

In dealing with aggravated cases of distortions, such as fall within the purpose of this paper, we have very largely lost sight of this, the central idea that should engage us in our methods of treatment. For, however we may seek to redress imperfections of the supports and repair lacerations of the pelvic floor, if we fall short of placing the uterus in such a position as respects intra-abdominal pressure as to cause it to cease to be an element in the production of displacement, we utterly fail to obtain satisfactory and enduring results; since it is only a question of time when the gathered up tissues of a colporrhaphy, perineorrhaphy, etc., will have yielded to the steadily continued, downward, intra-abdominal pressure. Experience has amply proven this observation, and the explanation of the fact is found in the circumstance that I have sought to make clear.

DIAGNOSIS.

To the end that treatment of these affections may be successful, it is a matter of prime and paramount importance that we should be able to make a reliable diagnosis. The gynecologist who is in the habit of proving his diagnosis through laparotomy work, if he uses the proper means and methods of physical exploration of the pelvic organs, will soon become so proficient that he can safely venture upon a positive diagnosis in fully 95 per cent. of his cases.

By method and means of investigation I mean that the patient, having been thoroughly anesthetized, must be placed in the dorsal position with the limbs well flexed upon the body, so as to cause the sacral curve to be brought well to the front, to the end that the axis of the pelvic cavity will conform as nearly as possible to that of the trunk. By this means the space between the fingers of the right hand that are in the vagina and rectum, and those of the left hand that are buried through the abdominal muscles above the symphysis, will be materially lessened, so that each organ of the pelvis can be clearly outlined, and its form, position, consistency and mobility be readily determined. I usually employ the index finger in the vagina and the middle finger in the rectum simultaneously. The greater amount of information is obtained through the rectum.

TREATMENT.

The retroversion pessary finds its useful application in those cases of retroversion and retroflexion in which the uterus is not bound down by peritoneal adhesions; in which the ovaries are not prolapsed, and as is often the case, incarcerated in the cul-de-sac of Douglas; and in those in which the displacement has not lasted so long that the round ligaments and other supports have lost all power of regaining their resiliency. In such cases, having first relieved complicating conditions, such as laceration of the cervix and tears of the perineum, we can by the patient and judicious use of the intra-vaginal or Smith-Hodge pessary accomplish much for the relief of our patients; and recognizing the fact that the displacements usually manifest themselves after parturition, it becomes the imperative duty of the obstetrician to make a careful physical exploration of the pelvic organs within eight or ten weeks after accouchement, with the view to correct, in the manner indicated, any altered position of the uterus that may be discovered. For at that period the displacement, as a rule, has not produced inflammatory results which would negative the use of the pessary; since such cases generally remain uncomplicated for a variable period of time, often months, save possibly by the results of subinvolution.

The conditions and results of treatment are far different when the displaced organ or associated pathologic state has produced pelvic peritonitis, the adhesive products of which have fastened the uterus, and possibly the ovaries, in varying relations to each other in the cul-de-sac of Douglas with possibly suppurative results; so also are they different when the suspensory supports, from long-continued traction, have become so attenuated as to be practically paralyzed. Just as we are able to destroy the tendency of rubber to contract by overstretching, so likewise do the suspensory supports lose their function.

Prolapsus in the first degree can usually be corrected by the use of the pessary, after complicating conditions have been relieved, such as hypertrophy, elongation or lacerations of the cervix, or tears of the pelvic floor; but let the case become once well established, as is represented in the remaining degrees of prolapsus, and we have a condition of things represented by stretched and paralyzed suspensory supports; the cellular tissue is without elasticity; the muscles of the pelvic floor, if not torn, are atrophied and often have undergone fatty degeneration. Under such circumstances, with the conditions recounted it is idle, nay more, it is foolish, to expect anything like complete and satisfactory results from the methods of treatment usually pursued.

In the case of the adherent retroposed uterus, pessaries are inapplicable and forcible breaking up of the adhesions after the method of Schultz, through the uterine cavity, is dangerous and often ineffectual; in fact, all attempts to replace or otherwise interfere with a uterus that is bound down in its displaced

position by adhesions, other than through intra-abdominal procedure, are dangerous and to be condemned, for the reason that absolutely accurate knowledge of the pathologic conditions can not always be ascertained, and in consequence we may unconsciously compromise the life of a patient by causing the contents of a pus sac to be liberated into the peritoneal cavity; and further, it is a blind procedure, lacking all the elements of precision necessary to reliable and good ends. Here it is that a method of treatment presents itself which, in the hands of the clean and skilled surgeon, is both safe and efficient. I allude to hysteropexy, which, as you know, means literally a fixing of the uterus, and is applied to those procedures that have for their purpose the maintenance of the fundus of the uterus in connection with the anterior abdominal wall.

The methods of practicing hysteropexy pursued by operators thus far differ in many particulars; the operation has been practiced scarcely long enough to enable us to decide positively which is the most desirable method, and yet long enough to permit us to pronounce quite confidently upon its worth. Through it, in a sure and reliable manner, we place the uterus so that its posterior surface is opposed to intra-abdominal pressure, which, as previously stated, acts from above and behind in such a manner as to assist in maintaining the proper position of the uterus. We thus supply the keystone to the arch of uterine retention, without which in no uniformly reliable manner can the damaged pillars of support be made adequate to their requirements. It is astonishing how small a measure of force is necessary to keep the uterus antiposed when anchored ever so slenderly in its proper place.

Hysteropexy.—The general precautions pertaining to a celiotomy having been observed, the opening through the abdominal wall is made as low down as practicable, and no larger than necessary to admit of efficient and expeditious work. The patient is placed in Trendelenberg's position, by means of which the pelvis is freed of the confusing presence of intestines and omentum, and they are spared the injury of unnecessary manipulation. The walls of the incision are held outward and apart to admit of as free inspection of the pelvic organs as possible. Parenthetically I will say that the advantages in this direction are very great in subjects with thin abdominal walls, and the reverse in those heavily loaded with adipose tissue. Our manipulations in the abdomen are also facilitated and retarded by these conditions. By means of inspection and the sense of touch, accurate knowledge of the conditions and relations of the pelvic structures is obtained. If adhesions exist, they are broken up by means of the index and middle fingers; the ovaries and Fallopian tubes are brought up to the abdominal opening and carefully inspected, and if found to be seriously diseased they are removed, otherwise not. Small ovarian cysts are treated by clipping off a portion of the cyst wall. The fact that the organs are found adherent is not in itself sufficient justification for their removal. Next, the uterus having been lifted to the front is seized through its fundus with a double tenaculum and held by an assistant in such relation to the abdominal wound that the operator can readily pass a curved needle threaded with a heavy chromicized catgut suture through all the tissues of the abdominal wall except the skin, embracing sufficient of them to secure a firm hold, then through the anterior and upper portions of the fundus and out similarly through the abdominal wall at the opposite side of the incision. The tenaculum is now removed and the assistant takes the catgut suture in its stead. The abdominal wound is then closed by interrupted sutures in the usual manner, with this difference: That the catgut suture that has transfixed the uterus is tied before, but not until the abdominal suture in closest relation to it has been drawn upon, so as to approximate the peritoneal surfaces. The tying of this last abdominal suture draws the skin over the catgut suture and thus buries it. This has been my method of operation, and the results have been uniformly good. In not a single instance has the uterus failed to remain in the position in which it was placed, and the outcome so far as the restoration of the general health is concerned has been all that could be expected, and in many instances singularly excellent. It has been the custom of some operators to abrade the anterior surface of the uterus, with the view of producing extensive peritoneal adhesions; of others, to transfix the uterus with many sutures, and pass the same through all the structures of the abdominal wall, using as a rule silkworm gut. I think that a larger experience will demonstrate that such extra precautions are unnecessary.

It may be asked by some one, Why not do Alexander's operation for the relief of these affections? The fact of the matter is that Alexander's operation has a very limited field of utility; it is entirely inapplicable to cases of adherent uteri, or where the adnexæ are diseased. It will accomplish scarcely more than a properly adjusted pessary when the round ligaments have not become permanently paralyzed; it will accomplish nothing when they have become so, for they are then merely greatly attenuated cords often very difficult to find. The element of danger as respects hysteropexy is great or almost *nil*, according as the operator is wanting in proper antiseptic precautions and pathologic knowledge, or the reverse. In the one case the patients usually die very promptly; in the other, they are scarcely conscious of discomfort after the expiration of the twenty-four hours following the operation.

The query may come to you, What will be the result in the event of pregnancy following hysteropexy? Our experience in this respect has been limited, but not altogether untoward. I believe that the use of a suture such as catgut, that undergoes absorption, will be conducive to good results in this direction.

REPORTS OF CASES.

During the year just passed, very few weeks have elapsed that I have not practiced hysteropexy in one or more cases, in connection usually with other surgical procedures; for such cases as call for this operation are usually complicated. So far I have had no deaths, and as yet the uterus remains as placed in every case. It is true that the length of time that has passed is not very great, yet it is more than sufficient for the institution of the initial steps of displacement, the absence of which, together with the results to other operators, justify a sense of assurance as to the ultimate outcome. I will not tax your patience by imposing upon you numerous and extended reports of cases. I shall merely ask your attention to such as exemplify a principle of treatment:

The first case that I will report is that of Mrs. F., aged 32

years, married, the mother of four children; ill health dates from a confinement five years previous to the time of consulting me in the early part of September, 1893. Her general health was horribly impaired; weight 105 pounds; suffering more or less all the time; utterly incapacitated for any duty. Physical exploration revealed an irregular mass in the cul-de-sac. Diagnosis: Retroflexed and adherent uterus, in connection with prolapsed, adherent and suppurating ovaries. Operation on Sept. 27, 1893: Adhesions broken up with great difficulty. Material assistance to this end was rendered by Dr. B. M. Hypes who elevated the parts by pushing with his fingers in the posterior fornix of the vagina. Ovaries and tubes removed and the uterus fastened to the anterior abdominal wall after the manner previously described. Patient made a good and prompt recovery. Weight now 137 pounds, ruddy complexion, magnificent spirits. Examination of the uterus made a short time since finds it in normal position, all pelvic induration gone, and seemingly the usual degree of mobility of the parts.

Case 2.—As illustrative of the conservative possibilities from hysteropexy, I report the following: Mrs. G., aged 27, married, the mother of three children, consulted me on Feb. 1, 1894; general health greatly impaired, dating from last confinement two years previous. Diagnosis: Uterus retroverted and bound down by adhesions; ovaries cystic, prolapsed and adherent. Operation on Feb. 19, 1894. Adhesions broken up, one ovary removed, uterus approximated to the anterior abdominal wall as before. Prompt recovery. Uterus in proper position at the present time. General health completely restored.

Case 3.—Multiple operations at one sitting. Mrs. L., aged 31, married, one child; ill-health dates from its birth about three years. General health greatly impaired; suffering constantly with pain in the back, down the limbs and a sense of downward pressure in the pelvis. Diagnosis: Laceration of the perineum, laceration of the cervix, prolapsus of the uterus and cystic ovaries. Chloroformed March 12, 1894, at which time was performed a double trachelorrhaphy, a perineorrhaphy, also one ovary was removed, the other treated by snipping off a portion of the cyst walls, and the uterus approximated to the abdominal wall in the usual manner. Length of time under the anesthetic less than one hour. Her recovery has been uninterrupted. The uterus at the present writing remains as adjusted.

Case 4.—Mrs. W., aged 38, mother of four children; fleshy; complains of constant pain in the region of the sacrum, very nervous and frequently melancholic. Diagnosis: Retroflexed and adherent uterus, ovaries prolapsed and adherent in the cul-de-sac under the uterus. Operation Feb. 23, 1894. Adhesions broken up, structures removed and uterus approximated as in other cases. Result, recovery. A recent examination of the patient reveals the parts in good condition and mobility measurably restored. The ovaries did not prolapse after the uterus was brought to the front.

Case 5.—Mrs. R., aged 39, mother of three children, consulted me in January, 1893; general health completely wrecked. Her features and expression were those of an old woman, shriveled by age; mental faculties so disturbed as to make her almost irresponsible most of the time; decidedly melancholic. Diagnosis: Retroflexed and adherent uterus, prolapsed and suppurating ovaries, also adherent; pachy-salpingitis. Operation Feb. 12, 1893. Adhesions broken up, diseased structures removed, and uterus fastened to the abdominal wall after the manner practiced by me. Result, complete recovery; general health, mentally and bodily, thoroughly restored. One who had seen the patient just prior to the operation would scarcely recognize her to-day as being the same person, for she is now the picture of health, having gained fully forty pounds of flesh. The uterus still remains in proper position

It is my custom to curette the uterus almost invariably before performing hysteropexy for the reason that endometritis is generally an accompaniment of chronic displacement.

NICKEL STEEL FOR SURGICAL INSTRUMENTS.

BY EDMUND ANDREWS, M.D.
SENIOR SURGEON OF MERCY HOSPITAL, CHICAGO.

Nickel steel has become famous the world over for its capacity to form an impenetrable ship armor.

It is an alloy of steel with about 3.2 per cent. of nickel. Its color and appearance are those of ordinary steel, but its qualities are remarkable. Its tensile strength is raised by the addition of the nickel to about 200,000 pounds per square inch, which is nearly as great as that of the best hardened steel, without any of its brittleness. On the contrary, it has extraordinary toughness, and resists cannon shot to a degree far beyond any armor plating before known.

The commander of the United States Arsenal in Springfield, Mass., informs me that he has tried to make rifle barrels of it, but he finds it almost impossible to turn it or bore it.

It seemed likely that qualities like this might be of use in certain surgical instruments. Having with much difficulty secured a piece of this steel, trimmed from the edge of an armor plate, I had it submitted to chemical and practical tests. The specimen had the following composition, in 1,000 parts: Steel, 996.747; nickel, 3.200. The carbon in the steel amounts to 0.031; phosphorus, 0.022.

To test its capacity to resist rust, I boiled a polished piece of it for twenty minutes in a sterilizer filled with hydrant water, along with instruments of ordinary steel. It resisted oxidation better than ordinary instruments, but there was not a complete exemption from that evil.

Mr. Degenhardt, a thoroughly experienced cutler and instrument maker, then took the metal in hand. He found it to possess immense tensile strength and stiffness, combined with remarkable toughness. A small cold bar could be bent short over upon itself without cracking. Drawn into fine wire, these qualities enabled him to make filiform bougies whose tips could be bent, without any danger of breaking, into any shape necessary to pass through a stricture. Excellent fine probes were made of the wire, which, though stiffer than silver probes of the same size, could be bent to any extent without breaking. I infer that the staff of Maisoneuve's stricture cutter could be made of it, with the advantage of having it decidedly more slender than the ordinary one, and therefore able to penetrate a smaller stricture, with a total exemption from any liability to break in using.

In a similar manner, stricture divulsors could be made of very small size.

It was my intention to have some very slender scissors, bistouries and tenotomes made for fine surgical work, but the instrument maker found that while the blades would not break, the edges turned, and could not be made to hold their cutting form by any mode of tempering known to cutlers. The same quality renders it unfit for saws, but its immense tensile strength would be very valuable in chain and wire écraseurs.

Lithotrites could be made of it, which would never snap off on a hard calculus and, owing to its great strength, slender instruments could be made of it for crushing calculi in children.

Steel can be alloyed with several metals, producing compounds with varied qualities, some of which would be of use in surgery. Tungsten steel is an exceedingly hard alloy. In the great rail and bar mills, where thousands of holes have to be bored through steel bars every day, the drills are all pointed with tungsten steel, in order to avoid the necessity of constant sharpening. It would be well could we have our bone drills made in the same way, as well as the locks of our hemostatic forceps, which now

wear out so quickly. Manganese, titanum, copper, and numerous other metals form alloys with steel, but the qualities of the compounds for surgical use do not seem to be well known. It is desirable that some metallurgist should take up this investigation and give us the results of his study.

65 Randolph Street, Chicago.

SOCIETY PROCEEDINGS.

College of Physicians and Surgeons of Philadelphia.

ORTHOPEDIC SECTION.

Meeting of April 20, 1894.

Dr. T. G. Morton presented, through Dr. Woodbridge, several cases of double equino-varus with removal of astragali:

Case 1.—Mary J. McK., one year, ten months old; living at Bryn Mawr, Pa. Congenital, uncomplicated talipes equino-varus. Operation of division of tendo Achillis performed Feb. 21, 1894. Posterior right angled tin splint for a week, followed by ordinary brace, side steel support. April 20, apparatus discarded every other day and plain shoe allowed. Foot in good position. Result perfect.

Case 2.—Benj. Jordan, two and a half years old. Living in Philadelphia. Double, uncomplicated, congenital talipes equino-varus. April 5, 1894, operation of division of tendo Achillis and tendon of anterior tibial by open incision. Rectangular, posterior splints; dressed a week after operation. Feet in good position. Also division of flexors of all toes.

Case 3.—Orm Gantt, 5 years old; living at Island Heights, N. J. Admitted into the Orthopedic Hospital, Jan. 17, 1894, with the statement that he had been deformed since birth; having double talipes equino-varus; in walking his feet were turned in, so that he walked upon the dorsum of each foot. When eight months old he had been operated upon at the University Hospital. He then wore braces until 3 years of age. He did not remain in the Hospital after operation and the after treatment was probably neglected. After admission his feet were poulticed for three nights, in order to soften the callus on the dorsum of each foot. The operation was performed on January 25; Dr. Morton severed the flexor tendons of all the toes, the anterior tibial and the tendo Achillis of each foot. He also made an incision three inches in length on the outer aspect and dorsum of the feet through the callus, and simultaneously removed the astragalus and part of the cuboid bone of each foot. The rectangular, posterior tin splints were used as in the other cases. There was no rise in temperature after operation. Dressed for the first time on February 8. Wound well healed. He continued to wear the rectangular tin splint until March 3, when braces were applied which he is still wearing. Feet are now straight and in good position. Wounds entirely healed.

DR. G. G. DAVIS.—There are two things in regard to this case which occur to me: First, as a rule, I do not believe in open incision. The only advantage gained is when one cuts down upon bundles of contracted tissue; but in division of a healthy tendon, in an equally healthy patient, I do not think it necessary. In a case of torticollis where we have dangerous structures in the neighborhood, and where there are contracted tissues and a tendon that does not slide in a synovial sheath, then I would use an open incision.

Some time ago I showed at the County Medical Society several cases of wedge-shaped resection. As for myself, I have never seen a case at the age of 5 years on which I would operate upon the bones. In one case, which I showed at the College of Physicians, aged 6 or 7 years, the child walked upon the dorsum of the feet, the toes pointed towards each other and the sole vertical, yet it was cured without operating upon the bones. The bones, in cases of this age, are soft. I showed an astragalus, removed by another surgeon, which was so soft that I could push a pin through it, with my finger, in all directions.

DR. G. G. DAVIS—I do not believe that excision of the astragalus alone, in cases which demand operation on the bones will straighten the foot; therefore where bone is required to be removed I believe the deformity can only be rectified by severe measures. In removing the astragalus, a portion only of the obstruction is removed and the external arch is left intact, and the deformity which remains is so great that it demands further procedures on the outer side of the foot, such as a removal of a portion of the cuboid or anterior portion of the calcaneum. A foot that can be straightened by removal of the astragalus alone is usually one which can be cured without operation on the bones.

DR. WOODBRIDGE—I thank the Section for the courtesy of allowing me to present these cases and as I have another engagement I will not enter into the discussion. I have only one word to say: I understand that Dr. Morton never removes an astragalus when it is in place; it is only when it is deformed.

DR. DEFOREST WILLARD—In tenotomy of the posterior tibial tendon, especially in fat infants, open incision is desirable. No surgeon, however, works in the dark in subcutaneous section of the tendo Achillis, and this method is just as exact as the open one since an amount of material will be thrown out, proportionate to the separation of the cut end.

Abstract of

REMARKS ON THE USE OF A BRACE IN LATERAL CURVATURE FROM EMPYEMA,

by DR. G. G. DAVIS. At a recent meeting of the Section when I exhibited a patient about 7 years of age wearing a brace for the correction of lateral curvature resulting from empyema, the views expressed by some present were so at variance with my own as to induce me to more carefully examine into the subject and ascertain whether the brace as ordered, was likely to be of service and desirable.

A discharging sinus, existing in the left chest wall of the child for more than a year, was only recently cured. Examination posteriorly showed the whole trunk, from the pelvis upward, inclined toward the right side with a slight lateral curvature in the upper dorsal region, the convexity being to the right. The right shoulder was higher than the left and the right scapula formed quite a prominent projection. Laterally, there was a slight forward inclination of the right shoulder which increased the prominence of the right scapula. On the left side there existed the scar and depressed cicatrix where the ribs were excised; and the contraction of the altered intra-thoracic tissue had taken place, accompanied by sinking in of the chest wall and lowering of the left shoulder.

As the general object in using braces and apparatus is to correct certain alterations in the form of the body, let me examine the mechanical problems suggested, and the means taken to solve them. First, then, as the deformity was confined to the upper portion of the body, therefore the means of correction were applied to that part. Again, as the lower portion of the body was normal, it furnished a fixed point of support for the application of the correcting force, consequently a steel band was made to encircle the pelvis between the great trochanters and the crests of the ilia, and fastened in front by a strap and buckle. To increase the hold of the band, a wide linen belt was attached to it, and reached from the trochanters to the ribs. It was secured

by two buckles in front. Four steel uprights were attached to the steel band, one under each axilla and one on each side of the medial line posteriorly. A transverse steel bar was fastened to the upper ends of the upright and curved so as to be high in the middle of the back and low under each axilla, forming a crutch.

Placing the child on his back and firmly strapping on the brace, corrected the lateral deviation of the trunk. Next to correct the elevation and forward inclination of the right shoulder and accompanying projection of the scapula, a strap was passed from the anterior end of the right crutch, over the shoulder and attached behind. This drew back the shoulder and corrected the tendency to stooping. Finally, to make lateral pressure over the projecting lump in the right upper thoracic region, a wide elastic band was fastened by straps to the right axillary upright, and to the upright on the left side of the spine. This made excellent pressure and completed the requirements of the brace. An apron had been attached by the mechanician, but as there was no necessity for it I removed it.

In another case, instead of fastening the elastic band to the axillary upright, I shall attach it to one running between the anterior extremity of the crutch to the pelvic band, and so obtain a more directly lateral force. This brace offers no hindrance to the free expansion of the contracted chest, and in no way prevents the patient from running, playing, or indulging in exercises and gymnastics, such as swinging from rings, or horizontal bars, etc. Morning and evening after removing the brace, he exercised by bending forward and backward and from side to side. The most important principle involved in the use of the brace in this class of cases is the means to be adopted to secure the expansion of the affected lung and chest wall. Is it better to allow a patient, with a recently healed wound and a marked deformity, to go without any attempt at correction on our part, or should we, by a portable brace, endeavor to maintain a gentle and persistent pressure on the distorted parts which will cause the contraction to gradually yield, yet not interfere with the expansion of the affected lung; while at the same time, the child is prevented from assuming any posture favoring persistence of the deformity? I have preferred the latter, with such exercises as he can take, believing it to be much more efficient than the spasmodic stretchings of intermittent exercises, interspersed with periods in which the body will be inclined to the affected side and every opportunity given for the contraction to take place. After the deformity has been partially reduced and the tendency to assume objectionable positions somewhat overcome, the brace may be discarded and therapeutic gymnastics alone employed.

DR. J. HENDRIE LLOYD—I have no set paper. I simply wish to make a few remarks and to show a few photographs. The subject of scoliosis is of great importance to the surgeon. I think the nervous origin of the disease is not sufficiently recognized by surgeons. It is important that it should be. It is seen especially as a complication of nervous diseases, as syringomyelia. In a recent monograph, Bruhe says that in 50 per cent. of cases of syringomyelia, scoliosis occurs. Some of these cases are also associated with marked kyphosis. One case of syringomyelia has come under my notice in which the deformity was similar to that shown by the skeleton here exhibited. One point in connection with scoliosis in syringomyelia is shown by this photograph. In some cases, when the patient is in the recumbent position, the deformity is obliterated. This case, seen in the photograph, simulates torticollis, because the scoliosis is high in the cervical region.

The second case with which scoliosis is associated is Freidrich's ataxia. It is a disease of the spinal cord seen in childhood, and we are apt, again, too frequently to overlook it. It is allied to another form of disease which we may call disatrophy. I have under my care at the Home for Crippled Children, a girl, aged 11 years, in whom there is marked muscular disatrophy; there is secondary affection of the joint at the knee and ankle; and there is scoliosis. While not a typical case of Freidrich's ataxia, it is closely allied to it. There is probably some change in the tissue of the spinal cord. The photograph of the case shows the deformity at the knee and ankle, but even while lying in bed the twisting of the knee can be seen.

The last form of nervous disease which is confounded with scoliosis is shown by this photograph; the case had been under the care of a surgeon. When I went on duty at the Methodist Hospital, I found this woman with an affection of her knees; the surgeon had tapped them. As the case did not seem to progress it was turned over to the medical wards. I was struck by the peculiar deformity of the hand, which neurologists call *main en-griffe*. There was complete atrophy of the shoulder girdle. There was marked scoliosis. In short, the woman had muscular atrophy affecting the shoulders, arms and hands, with spastic symptoms in the legs, and with scoliosis and arthropathies. There were no sensory symptoms. The case was doubtless allied to syringomyelia. It is interesting to note that it had been regarded and treated as a surgical case.

A number of hypotheses could be advanced to account for scoliosis. One observer says that all cases of scoliosis are allied to arthropathies; for instance, it is identical, in the joints of the spine with arthropathies in the knee. Roth says it is due to muscular atrophy. Another hypothesis is that they are distinct trophic lesions, something like progressive atrophy.

When a case is of nervous origin the scoliosis, to a certain extent, is an evidence of Nature's effort to put the diseased spine in a better position. I never saw a case which would tolerate an apparatus. Most of the cases suffer great pain if attempt is made to straighten the spine. I recently admitted, to my ward in the Philadelphia Hospital, a young woman affected very similarly to some cases already mentioned; there is marked progressive muscular atrophy. She could not bear a brace of any sort. My remarks are entirely from the standpoint of a neurologist; I say nothing about the condition associated with empyema.

DR. C. K. MILLS—I have had two cases of syringomyelia in which spinal curvature was present. The cases of degenerative diseases, and syringomyelia in adults are not the ones most likely to show deformities, but these occur most frequently in Freidrich's ataxia and the affections closely allied to it pathologically, which show themselves early in life; but even in adults lateral curvatures do take place. I believe with Dr. Lloyd that little can be done with apparatus. In many other degenerative embryonal diseases, which are due to arrested development, my experience teaches me that little can be done either by operation or by apparatus, especially for the porencephalous cases. In spastic cases, either unilateral or bilateral, some advantage can be gained as to position, but nothing more.

DR. G. G. DAVIS—The orthopedists ought not to be too strictly called to account, because I think they would not put on an apparatus for an advanced case of pure nervous disease, except as a palliative measure. Much can be done by apparatus and it depends upon the nature of the case greatly. If an apparatus will give any additional comfort to the patient it is oftentimes advisable to order it. In regard to the cases referred to by Dr. Lloyd; in Freidrich's ataxia, a light brace might aid in supporting the body, and in Charcot's joints a mechanical appliance does, for a time, support and give at least some slight relief, which is more

than can be promised by medical treatment. I believe in the necessity for recognition of the points of the case, but I do not think that the application of apparatus is always useless.

Dr. J. Hendrie Lloyd—I should like to ask Dr. Davis if he would put an apparatus upon a Charcot joint? It is a matter of interest to me, as a surgical question, and I should like to hear it discussed. I think, in these cases, the surgeon, sometimes, does not recognize the exact nature of the difficulty. I know of one case, however, in which a surgeon operated on a spinal arthropathy, the exact nature of which he did not recognize, and in which marked benefit resulted from the operation.

Dr. C. K. Mills—The patient shown here to-night came to the Polyclinic Hospital last week. I have not full notes of the case, but the history is as follows: The man is 30 years of age, a painter by trade. The difficulty started slowly; at first he experienced trouble in holding his head still. When reading a paper, in spite of everything he could do, his head would turn slowly to the left. He has no pain, but this has persisted and is slowly growing worse. The case is one of a class somewhat common and, as we all know, most difficult to help. I have had considerable experience in what is termed spastic torticollis both of the tonic and clonic varieties; they are most obstinate and may resist treatment for years and forever. One case in particular occurs to me; a patient whom I showed at my clinic, and an account of which was reported in the *University Medical Magazine*. She had three surgical operations on the spinal accessory, and she had been burnt with a hot iron many times, but no help was obtained. I have brought this man here to-night, to obtain suggestions as to treatment. I have seen cases get well, but it is an affection difficult to cure because we do not recognize the underlying anatomic conditions.

Dr. J. Hendrie Lloyd—It is my opinion that torticollis involves a problem which we do not all understand. Prof. Ferrier and Mr. Horsley advanced the theory of a localizing torticollis center; at that time we were ready to localize anything and everything. But certainly we do not understand the condition.

A paper was next read by Dr. Randolph Faries, on the

TREATMENT OF SCOLIOSIS BY FREE MOVEMENTS AND APPARATUS,

in which he held that as the deformity is due to the concerted action of certain muscles or groups of muscles, therefore these should be kept inactive until their antagonists have been developed, by means of exercises and gymnastic apparatus, sufficiently to counteract the power exerted by the former ones. Also that the deformity, being compound, should be corrected in the same order as it occurred; that is, the rotation is first corrected, then the lateral curvature.

Dr. Wm. J. Taylor—I regret that I was not present at the reading of Dr. Faries' paper, as I am particularly interested in the treatment of spinal curvature by gymnastic exercises. I am glad to say, however, that such portion of the paper as I had the pleasure of listening to, meets my views entirely. But for the reason already given I am prevented from discussing the paper intelligently.

Dr. C. K. Mills—I quite agree with Dr. Faries as to his method of treating spinal curvatures, but the difficulties in the way are great. Little can be done in this direction until the colleges set the example, and until, in connection with every hospital, a room is set apart for this purpose and is put in charge of a competent assistant who can carry on the work year after year. It is essential that we should impress upon ourselves and our patients that this treatment should be carried out systematically for two or three years if necessary. One of the tendencies of modern medicine is in this direction, and steps should be taken immediately to further and further advance the treatment.

Dr. G. G. Davis—Lateral curvature is a subject much considered by the orthopedic surgeon, and for it much good can be done by gymnastics. There are two classes of such cases. In the mild ones, where the muscles are at fault and the spine itself comparatively healthy, therapeutic gymnastics are of no service. But there is another class in which the pathologic process is more profound and in which the bone and ligamentous tissues are likewise affected, and as the spine is the organ for keeping the body erect, the simple weight of the body which is supported by the spine will tend to cause curvature of it, and the tendency to distortion is increased by the efforts of the muscles on both sides of the spine. I believe that where this condition exists the spinal column will give way and deformity will occur rapidly; in these cases exercise is of little or no service. I believe that there are cases of lateral curvature which might be termed malignant. The deformity goes on increasing and in spite of most careful treatment the patient rapidly grows worse.

Dr. Randolph Faries—The most essential point is the fact that we are ignorant of the compound action of the forces which are used. It is quite true that when one set of muscles is weakened, the corresponding set is strengthened and rotation takes place, after which deformity ensues; but just what forces are used, we do not know, and it is just this which seems to me the true scientific basis of the study of this condition. If this could be determined we should get at the rational method of treatment. The body of a vertebra may be made stretched by action, just as by action we make the tissues surrounding it more elastic. To my knowledge there is no medical book published which treats of the compound action of muscular force. Moreover, this seems to me the logical treatment of the disease, and until we treat scoliosis by the above method we are doing so empirically.

Medical Society of the State of Pennsylvania.

The Forty-fourth Annual Meeting was held May 15, 16 and 17, Philadelphia.

First Day—Morning Session.

This was perhaps the largest meeting ever held, over 520 members being in attendance. The President, Dr. H. G. McCormick, of Williamsport, opened the proceedings at 10 A.M.

The Mayor of the city and Prof. E. Montgomery, Chairman of the Committee of Arrangements, delivered addresses of welcome.

Reports of delegates to the American Medical Association, and to the New Jersey State Medical Society were read. The Secretary, Dr. W. B. Atkinson, of Philadelphia, reported fifty-one county societies, with an aggregate membership of 2,400. The Treasurer reported a good balance in his hands. The Committee of Publication reported the publication and distribution of 2,500 copies of the Proceedings of 1893. The Legislative Committee reported their success in obtaining the passage of a bill by the Legislature creating an Examining and Licensing Board, and were discharged with thanks. The Committee on Contagious Ophthalmia reported the dangers of this disease, and need for its prevention, by legislation.

Dr. G. M. Gould, of Philadelphia, offered the following:

Whereas, By all physicians it is admitted that a large proportion of the blindness of the world is due to the disease called ophthalmia neonatorum; and

Whereas, The well-known treatment of this disease by a physician, if at a sufficiently early period in its course, almost always results in preventing the blindness that would otherwise follow; and

WHEREAS, A committee appointed by the Ophthalmological Section of the AMERICAN MEDICAL ASSOCIATION at its last meeting has, after thorough consideration, drafted a blank form of a law and urged its passage by all State Legislatures, as well as advised all physicians to aid in securing the passage of such a law; and

WHEREAS, This blank form of a law drafted by the said Committee is as follows:

The People of the State of . . . . . represented in Senate and Assembly, do enact as follows:

SECTION 1.—Should one or both eyes of an infant become inflamed, or swollen, or reddened at any time within two weeks after its birth, it shall be the duty of the midwife or nurse having charge of such infant to report in writing within six hours to the health officer or some legally qualified physician of the city, town or district in which the parents of the infant reside, the fact that such inflammation, or swelling, or redness of the eyes, exists.

SEC. 2.—Any failure to comply with the provisions of this Act shall be punished by a fine not to exceed two hundred dollars, or imprisonment not to exceed six months, or both.

SEC. 3.—This Act shall take effect on the———day of ———eighteen hundred and ninety———; and

WHEREAS, Five States have already placed upon their statute books, laws similar to or identical with the foregoing law, while in other States the same measure is under consideration; and

WHEREAS, The Philadelphia County Medical Society on May 9 unanimously passed a resolution indorsing the law recommended by the Committee of the Ophthalmological Section of the AMERICAN MEDICAL ASSOCIATION, and appointed a Committee to devise means and methods of securing the enactment of such a law by the Pennsylvania State Legislature; therefore be it

Resolved, 1. That in the opinion of the Medical Society of the State of Pennsylvania, it is of the most vital importance to the welfare and happiness of the community, and to the good name of the State of Pennsylvania, which has always been foremost in matters pertaining to the health of her citizens, that the law recommended by the Committee of the Ophthalmological Section of the AMERICAN MEDICAL ASSOCIATION should be enacted by the Legislature of the State, and the Medical Society of Pennsylvania respectfully requests the Honorable Representatives of the State at Harrisburg to do all in their power toward placing such a law upon the statute books of the State.

2. That a committee of three be appointed to coöperate with the other Committees to devise means and methods of securing this law.

The whole was adopted.

Committee: Drs. Edward Jackson, H. F. Hansell and J. A. Lippincott.

On motion of Dr. Hiram Corson, Conshohocken, it was

Resolved, That a legislative committee of five be appointed, and that they be instructed to present the subject of the care and treatment of the insane and the organization of hospitals for the insane, as expressed by this Society two years ago.

Committee: Drs. J. C. Gable, York County; R. B. Watson, Clinton County; H. L. Orth, Dauphin County; Alex. Craig, Lancaster County, and C. W. Youngman, Lycoming County.

On motion of Dr. J. C. Gable, it was

Resolved, That a committee of seven be appointed to consider and suggest the appointment of an inspector whose duty it shall be to aid the Board of Examiners of Pennsylvania to carry out the medical legislation of this commonwealth, to report tomorrow.

Committee: Drs. Gable, S. S. Towler, of Forest County; F. P. Ball, Clinton County; T. C. Detweiler, Lancaster County; T. P. Simpson, Beaver County; W. Murray Weidman, Berks County; F. D. Davis, Allegheny County.

The Luzerne County Medical Society invited the State Society to meet in Wilkesbarre in 1895. It also protested against the use of the term, "allopathic" by daily papers.

On motion of Dr. S. Solis-Cohen, the following was taken up:

The respective State medical societies entitled to representation in the American Medical Association, and through them their affiliated local societies, having been requested to consider the matter of revision of the Code of Ethics and report to the Association at its next annual meeting; and if any alteration be deemed advisable, each State so deciding to specially indicate the part to be changed and write out in full the new form proposed; therefore be it

Resolved, That it is the sense of the Medical Society of the State of Pennsylvania that the Code of Ethics be not changed in any way.

On motion of Dr. Cohen, the Secretary and delegation to the American Medical Association were instructed to present this action of the Society in relation to the Code of Ethics.

FIRST DAY—AFTERNOON SESSION.

DR. G. D. NUTT, of Williamsport, read the

ADDRESS IN SURGERY.

He gave a review of progress made in this branch. The mortality in major operations had been reduced about one-half. Prevention of disease should be the aim of the profession. In difficult operations, success or failure depend greatly upon the action of the general practitioner in deciding to call in aid before the case has passed the safety point. Too frequently, failure is due to want of appreciation of danger sufficiently early.

DR. E. LAPLACE, of Philadelphia, read a paper on "Radical Cure of Hernia." Radical cure meant non-return of hernia in that place. To secure this, after alluding to the various methods of operating, he detailed his own which was to completely obliterate the canal by a slow healing by means of the production of a burn. The cicatrix thus closed the canal so that it remained closed. Hernia might recur but it could not pass down the canal which had been destroyed. It must then be a direct hernia and retained by suitable mechanical appliances.

DR. E. S. LEMOYNE, of Pittsburg, read a paper on a "Modification of Pirogoff's Amputation" which he asserted gave a better stump, and was more easy of applying an artificial foot, etc.

DR. J. C. MCALISTER, of Driftwood, on the "Treatment of Puerperal Eclampsia chiefly by Hypodermic Use of Veratrum Viride." He alluded to the great advantage of chloral; in addition he had found the veratrum hypodermically to act most powerfully. He detailed a number of cases in all of which his results had far exceeded those he had obtained from any other form of treatment.

DR. J. V. SHOEMAKER, of Philadelphia, read a paper on

PSORIASIS WITH SPECIAL REMARKS UPON ETIOLOGY AND TREATMENT.

He exhibited a series of five well-marked cases of psoriasis, and called attention particularly to certain important points concerning the origin and treatment of the disease:

Case 1.—The first patient has for many years been subject to recurrent attacks of rheumatism. This constitutional dyscrasia gradually gave rise to the disease of the integument and also affected the heart, which is hypertrophied. The mitral valve is likewise implicated. This man had been treated in vain by many methods. He has been in the Medico-Chirurgical Hospital for a week, during which time his diet had been restricted to one thyroid gland daily—one-half being taken, lightly fried, at noon and the remainder in the evening. As a consequence the eruption has become paler, less prominent and there has been less shedding of scales. This treatment will be continued for the present and his regimen will be gradually enlarged to include plain and easily digested articles of food. For cardiac symptoms, he was given 15 minims of strophanthus three times a day.

Case 2.—A man, 35 years of age, has had psoriasis for twelve or thirteen years. The disease began at nearly the same time upon both legs just in front of the knees. Until recently the patches had, for the most part, existed only upon the leg and at the back of the elbows but lately they have attacked nearly every portion of the body. A sister and a brother are also affected by the same disease. The patient has occasionally suffered from rheumatoid pains but he has never had a decided attack of inflammatory rheumatism. He believes that there is a rheumatic tendency in his family. His case is furthermore interesting by the coëxistence

of sycosis, which began three years ago upon the chin and now involves in addition the cheeks and upper lip.

The treatment of the psoriasis was by means of a capsule containing tartar emetic, sulphide of calcium, and salol.

Case 3.—A coachman came under observation sixteen years ago, covered with psoriatic patches. The lesions differ from those of the first patient in being brighter, more infiltrated and more abundantly provided with scales. The man is an old rheumatic subject. When the rheumatic symptoms disappeared under appropriate treatment the psoriasis vanished. Now, after the lapse of so long a period, the rheumatism has returned and with it the eruptions upon the skin. The lesions are especially marked upon the exterior surfaces. He has been given 10 grains of sublimed sulphur with a grain of cream of tartar in capsules three times a day in the hope of overcoming the constitutional condition upon which the disease of the skin depends. Both sulphur and cream of tartar are admirable remedies in the treatment of rheumatism and both have a decidedly beneficial effect upon the glands of the skin.

Case 4.—This man, 32 years of age, sent by Dr. Whitesides, of Philadelphia, entered the hospital but a few moments before I started for this meeting. In the brief conversation which I had with him I learn that he is an old sufferer from gastro-intestinal catarrh. Three years ago this condition was relieved and the psoriasis disappeared. Lately they have both returned. You will perceive that the whole surface is more or less studded with large and small spots of infiltration and that these are particularly marked upon the extensor surface. Here and there the skin is fissured. I wish in this instance, to direct the attention of the members to the cause of the eruption, viz., an alteration in the mucous membrane of the gastro-intestinal tract. If we can correct this condition by suitable remedies it will not be necessary to make local applications in order to remove the infiltrations. I will order in this case 2 drachms of liquor pepsini with 10 minims of dilute hydrochloric acid before meals and one-fiftieth grain of sulphate of strychnin after meals. The diet must be restricted.

Case 5.—This patient is likewise affected by spots and patches of psoriasis, especially upon the elbows and knees. The disease is of long standing, the infiltration is marked and numerous fissures are present. As the man only speaks Hungarian I have been unable to obtain a detailed history of his case. I will, on general principles, assume that the skin disease is associated with the gouty or rheumatic diathesis. He shall be placed upon the iodid of potassium in 15 or 20 grain doses three times a day.

"These cases are excellent illustrations of the etiology of psoriasis. Two of the patients are frankly rheumatic, two are probably of arthritic tendency, while the fifth is the subject of chronic gastro-enteritis.

"Psoriasis is often excited by the presence of rheumatism or gout. In other cases it depends upon chronic disturbance of the digestive organs, disease of the liver, disorders of the blood and maladies of the nervous system. The appearance of the papules, patches, and scales is characteristic and typical, whatever the cause. The facts relating to its etiology are most significant guides to treatment. In each case we must endeavor to ascertain the origin. Though the lesions present precisely the same appearance the therapy must obviously differ in accordance with the etiology. A routine treatment of psoriasis is an impossibility. Defects of digestion and nutrition must be corrected, constitutional and —approximately—specific remedies must be administered or the state of the nervous system must be improved. The habits and the diet must be regulated or changed. Ingestion of thyroid glands is a mode of therapy which may well prove of service in certain cases. The grand principle of treatment is to determine the origin of each case. Acting upon this belief, I lay comparatively little stress upon topical treatment. Increasing experience convinces me that accuracy in tracing the genesis of the disease points to an internal therapy upon which we may place our reliance more firmly than upon local measures."

Dr. Orville Horwitz, of Philadelphia, read a paper on "Treatment of Stricture of the Urethra," which elicited a discussion by Drs. J. B. Deaver, Prof. Brinton and H. O. Walker, of Detroit.

Dr. O. H. Allis, of Philadelphia, spoke on "Cramming in Medical Schools," as making it impossible for the student to digest the immense amount of educational food forced upon him. His remarks produced quite a marked impression upon the members who were attentive listeners.

The time growing short, a large number of apparently interesting and valuable papers were declared as "read by title," and business was then called up.

The report on the Rush Monument Fund showed but one additional subscription for the year, of only $3, but the Committee was continued.

A resolution by Dr. P. D. Keyser, of Philadelphia, urging the striking out from the bill before Congress, relative to the Army, that portion reducing the number of Assistant Surgeons to ninety, was considered and unanimously adopted and ordered to be sent at once to Congress.

Second Day—Morning Session.

The Nominating Committee was announced and retired to deliberate upon choice of officers, etc., for 1895.

Dr. W. S. Foster, of Pittsburg, read the "Address in Medicine," giving a concise *résumé* of the advances in that line. He reviewed each point in a conservative manner, showing the absurdity of certain claims which had been made for the antipyretics, the animal extracts, etc. He counseled slower progress rather than the so frequent announcement of wonderful remedies soon to follow the foolish exhibition of past years.

Dr. Hildegarde H. Longsdorf, of Dickinson, Cumberland County, read a paper on "Christian Science in Its Relation to the Medical Profession." This ably exhibited the follies of this class of so-called healers, detailing at length their plans and the dangerous results which so frequently followed in real cases of disease. The paper was well received, and a motion was adopted to ask the Publishing Committee to print one thousand copies for distribution to the community.

Dr. S. Solis-Cohen made some remarks on the subject, "Should the Journal of the American Medical Association be Used to Promote Quackery?" He called up recent action of the Philadelphia County Medical Society, as follows:

"Whereas, The Code of Ethics of the American Medical Association declares it derogatory to professional character for a physician to dispense or in any way promote the use of a secret nostrum; and the Association by a resolution unanimously at its meeting, in 1892, forbade the advertising of such in its Journal, and

"Whereas, The Journal has continued to advertise such nostrums, and in defense of its course in this particular, has published an anonymous personal attack on a member of the American Medical Association and of this Society,

"*Resolved*, That the Philadelphia County Medical Society respectfully demands that the Trustees of the Journal of the American Medical Association shall in their public official acts respect the spirit and the letter of the Code of Ethics; and that the columns of its Journal shall not be used for the anonymous personal abuse of its members in good standing.

"*Resolved*, That a copy of these resolutions be transmitted to the Medical Society of the State of Pennsylvania and to the American Medical Association and to the weekly medical journals."

After full discussion, a substitute and changes were unanimously adopted as follows:

Resolved, That the Medical Society of the State of Pennsylvania hereby indorses the resolutions concerning the conduct of the Journal of the American Medical Association transmitted from the Philadelphia County Medical Society.

Resolved, That it is the opinion of this Society that if the finances of the American Medical Association do not permit the publication of a journal that does not violate the Code of Ethics by the insertion of notices of secret nostrums and other objectionable advertisements, the Trustees should be instructed to cease publication.

Resolved, That these resolutions, together with the resolu-

tions of the Philadelphia County Medical Society, be officially transmitted to each Trustee of the American Medical Association, and that the delegates to the Association elected at this meeting be instructed to present the same to the meeting of the American Medical Association at San Francisco, and to use every honorable endeavor to secure such action as shall effectually remedy the matter complained of.

Papers were then read by Dr. J. M. BALDY, of Philadelphia, on "Acute Endometritis;" by Dr. B. H. DETWEILER, Lancaster, on "Croup and Diphtheria," discussed by Dr. S. S. Cohen, who pointed out the difference between croup and diphtheria; by Dr. C. H. THOMAS, Philadelphia, on the

OPERATIVE TREATMENT OF MUSCULAR ASTHENOPIA (HETEROPHORIA).

A number of illustrative cases were reported which showed the extremely varied character of the symptoms and the favorable results of operation. The subjective symptoms of asthenopia show almost no distinct characteristics pointing to their origin, whether refractive or muscular; the same headaches and the same sense of eye-strain are complained of under both conditions. Graduated tenotomy (partial) is practicable and efficient because of the elasticity of the margins of the tendons. Muscular asthenopia may present symptoms of all grades of importance, from the slightest to the most serious. As in refractive, so in muscular, asthenopia, the gravity of the symptoms bears no constant relation to the amount of the physical defect. It is impossible to predict with any considerable definiteness the result of correction of either refractive or muscular error. As much—and very much the same kind of—relief is to be expected from the correction of muscular anomalies as from the correction of errors of refraction and accommodation; as might be expected from the similarity in the symptoms. The muscular conditions in every case should, as a matter of routine, be as carefully investigated as are the media, eye-ground, the refraction, and the amplitude of accommodation.

A large number of most valuable papers were declared read by title.

The Committee to aid the Board of Medical Examiners reported:

Resolved, That the secretary of each county society is requested to forward at once to the Secretary of the State Board of Medical Examiners a correct list of the registration of doctors under the last Act, on and from the first day of March last, and quarterly thereafter; and in counties without a society the President of this Society shall appoint a a member living in such county to procure such list, and in any case of neglect the Secretary of the State Board of Medical Examiners of this Society shall be empowered to procure the same.

Five hundred dollars were appropriated to carry this out.

Resolutions from the Allegheny County Medical Society in favor of epileptic colonies, and asking the authorities to aid in this matter, were presented and adopted.

An amendment to the rules governing the presentation of papers was laid over under the laws. This was in favor of short ten-minute papers and the interchange of personal experiences. Discussion to be limited to five minutes each speaker. This was caused by the unavoidable omission of many papers, owing to the great length of many that were read.

SECOND DAY—AFTERNOON SESSION.

The Nominating Committee reported these officers for 1895: President, John B. Roberts, Philadelphia; Vice-Presidents, S. C. Stewart, Clearfield County, J. A. Lippincott, Allegheny County, J. H. Wilson, Beaver County, R. Armstrong, Clinton County; Secretary, Wm. B. Atkinson, Philadelphia County; and the usual number of Censors, etc.

Next place of meeting, Chambersburg.

DR. T. MCKENNAN, Pittsburg, read the "Address in Mental Disorders," reviewing the current treatment and the use of hypnotics, etc.

DR. C. W. DULLES, Philadelphia, read a

REPORT ON HYDROPHOBIA,

which was a continuation of his former account presented six years ago. He reported 78 cases of nervous diseases recurring in the United States since his former communication was read, which turned out to be tetanus or cerebro-meningitis, which formerly would have been erroneously classed as rabies. Eighty per cent. of these were in States in the immediate vicinity of the Pasteur Institute in New York city, and this preponderance he ascribed to the agitation of this subject in the public mind by publications emanating from the said Institute. He was very conservative in his diagnosis and did not believe that hydrophobia is more apt to occur in the young.

DR. C. K. MILLS, Philadelphia, in discussing the paper agreed much with Dr. Dulles, but was not quite ready to say that hydrophobia did not exist. He was glad to know that the investigation was to be continued.

In a "Brief Review of the Therapeutics of Whooping Cough" Dr. W. C. Hollopeter, of Philadelphia, advocated antiseptic gargles especially containing hydrogen peroxid. He thought that a specific is yet to be discovered.

DR. MACCUEN SMITH, of Philadelphia, discussed the treatment of "Simple Inflammation of the Middle Ear and their Sequelæ." He insisted upon the routine examination of the ears of new-born children by the attending physician. Should there be accumulations in the meatus, they should be removed by the syringe. If on examination, the membrane be reddened, Politzenzation or inflation of the middle ear should be performed to remove inflammatory exudates from the tympanum. Deaf-mutism is frequently produced by neglected inflammatory middle ear disease, either catarrhal or infectious in origin. Dr. Burnett thought that inflammation of babies' ears is due to too much swabbing and urged that meddlesome interference be forbidden.

DR. L. TURNBULL, Philadelphia, discussed the subject, objecting to the practice of inserting all sorts of home remedies in the ears of children.

A paper on "Dietetics" was read by DR. H. F. SLIFER, of North Wales, reviewing the forms of treatment by diet and digestives. A number of others were read by title. Dr. G. G. Davis, Philadelphia, exhibited five cases of amputation near the ankle. These cases were shown to combat the theory that in injuries to the foot and its vicinity amputation, in order to give a good stump for the application of an artificial leg, must be done above near the knee. These men walked without difficulty, showing little halt, and each was engaged in work demanding much walking; one was a night watchman at a large establishment. The exhibition was accorded a round of applause.

DR. E. E. MONTGOMERY'S "Address in Obstetrics" followed, and under the call for new business the following was unanimously agreed to:

WHEREAS, The Library of the Surgeon-General's office of the U. S. Army, has grown to be the second or third in importance in the world, and has become the most important center of medical culture in the United States; and

WHEREAS, Any curtailing would be a national disaster to the medical profession of the United States, and to the people to whom they minister; therefore

Resolved, That the Medical Society of the State of Pennsylvania, respectfully and most earnestly petition the Appropriation Committee of the United States Senate to restore the annual appropriation to $10,000, as the minimum possible sum with which the usefulness of the Library can be kept up.

THIRD DAY—MORNING SESSION.

The "Address in Hygiene" was read by DR. J. H. WILSON, of Beaver. He alluded to the great need of attention to

cleanliness, fresh air, sunshine, pure water, etc. He referred to the way by which contagious diseases are propagated by books, papers and slate pencils which are not only handled but placed in the mouths by children, requiring disinfection in some way as by heat, etc. Some school boards compel a child who appears with dirty face and hands to go to the wash room and there be cleansed by the janitor. It is the duty of physicians to instruct patients in all points of hygiene; as the entire change of clothing at night, the regular washing of the feet, keeping the finger nails clean, etc. Back yards and cellars should receive as much attention as any other part of the premises. The care of consumptives to prevent the spread of tuberculosis was now being properly understood and handled by boards of health. This paper was discussed by Dr. W. P. Munn, of Colorado, who was present, who alluded to the house-to-house method of inspection now practiced in Denver. Contagious disease is reported, the officials inquire into the habits and work of the people; the plumbing, sewerage, etc., all is tabulated, kept in the public libraries and thus becomes the property of the public. When a person is about to rent a house, he goes to the health bureau, examines the records and knows the previous condition of that house, and its sanitary condition. Landlords are thus compelled to keep their properties in the best possible sanitary state.

Tuberculosis was the subject of several papers and much animated discussion. Dr. A. M. Cooper read one on "Psychical Phases in Tubercular Folks." As he was located in a country district he had a good opportunity of following such cases, and after an experience of forty years was inclined to great skeptical belief as to the contagiousness of the disease, especially in the married state. In fifty-five cases where fifteen husbands died, the wives were still alive and well, while in twenty-five where wives died, the husbands were all alive and in good health. He regarded heredity as more potent than contagion in consumption.

Papers were read by Dr. J. M. Taylor, Philadelphia, on "Contagious Aspect of Tuberculosis of the Lungs;" by Dr. L. F. Flick, Philadelphia, on "Prophylaxis" in this disease, in which he urged most earnestly the need of quarantine; he believed this was required, owing to the presence of the bacillus, though he admitted that its transplantation successfully demanded a proper soil. The disease is a constitutional one with a local auto-inoculation, and you can cure the case. It can be controlled in two ways; by building up the system and preventing the re-introduction of microörganisms into the system; by increasing the body weight, rest, sleep, etc. The reëntrance of disease by the sputum is specially to be prevented; all sputum must be received into vessels loaded with a germicide. This should be devitalized at the earliest possible moment. Houses where consumptives live should be thoroughly cleansed and bedding, etc., disinfected.

Dr. T. J. Mays, Philadelphia, spoke on "Strychnin Treatment." He detailed cases in which the most marked results followed positive doses of strychnin. Especially was it valuable in weak heart, and exhausted nervous system. Dr. D. Longaker gave the notes of an "Autopsy in a Case of Tubercular Meningitis."

Dr. W. P. Munn, Colorado, spoke on the "Colorado Climate for Consumptives." Cure and rest should receive as much attention as prevention. The most effective factors against the disease are those of environment, occupation, clothing, personal habits and the correction of faulty conditions; without these climatic changes are useless. Inhabitants of high dry altitudes do not acquire the disease. Such altitudes are fatal to the bacilli. The children of tuberculous parents born in such altitudes are usually exempt. The conditions for a cure are dryness, sunshine, pure air, rare atmosphere within certain limits and an equable moderate temperature. All these are found on the western slope of the mountains in Colorado. Of forty physicians in Denver, 30 per cent. were consumptives when they went to Colorado but are now in vigorous health. Five remain on account of consumptive wives, who are now in good health, and a large number of former consumptives are enjoying most excellent health. One-fourth of the people went there, originally, because of pulmonary disease in their families. He believed that outdoor life was essential in the cure, and to be cooped up in a room was no better in the West than any where else. Dr. S. Solis-Cohen spoke of the curability of the disease. He agreed with Dr. Munn that this must not be recognized among the curable diseases. Though some forms as the very acute—which is called "galloping consumption" on account of the general diffusion of the infection—left no hope of a return to health. The only reason why the chronic form is not curable is that the patient is so situated that he is unable to avail himself of therapeutic measures, or because the disease comes under intelligent treatment at too late a time. Generally, the patient is so placed pecuniarily as to be able to obtain the proper hygienic measures to procure improvement, and as in certain cases, while too far gone for a cure, can have the life prolonged and made very comfortable. He did not underrate the use of drugs, but if a choice must be made, would prefer to know how to live rather than to employ drugs. Proper breathing is a most important desideratum.

Papers were read by Dr. J. M. Anders, Philadelphia, and the discussion continued by Drs. Jas. C. Wilson, Philadelphia, J. Solis-Cohen, W. E. Hughes and others. During these debates Dr. W. T. Bishop, Harrisburg, obtained the floor and on his motion it was agreed that the elective officers should form a committee to carry out the suggestions in the address of the President to secure the membership in the county societies of all members of the regular profession, that thus the entire profession of the State should be more fully represented.

On motion of Dr. Towler, it was

Resolved, That the Medical Society of Pennsylvania presents the following facts to the Judicial Council of the American Medical Association and asks its action thereon:

The Trustees of the Journal of the Association in 1892, at Detroit, were directed to abstain from publishing in the advertising columns, advertisements of secret nostrums. Such advertisements are, however, still published in defiance of the resolution.

In the Journal of April 7, 1894, there is advertised a Sanitarium Association which openly offers stock to those physicians who will send patients to it for treatment. In the opinion of the Medical Society of Pennsylvania these advertisements are improper and unethical, according to the letter and spirit of the Code of Ethics.

The Medical Society of the State of Pennsylvania therefore asks the Judicial Council to take such action in regard to the said Trustees as is demanded to sustain the integrity of the Association and enforce the provisions of the Code of Ethics.

On motion of Dr. Frank Woodbury, Philadelphia, the following was unanimously adopted:

Whereas, Medical science and practice at the present day is securely founded upon demonstrable facts of chemistry, physics and biology, and is independent of and superior to the restrictions of any dogma, creed or so-called school of practice; and

Whereas, A title indicating sectarian distinction or restriction is inapplicable to scientific physicians and tends to mislead the public and therefore is highly objectionable; therefore be it

Resolved, That the Medical Society of the State of Pennsylvania respectfully directs the attention of the State Medical Council and State Board of Medical Examiners and Licensers to this subject, and requests the said Council in all its publications to refrain from the use of any sectarian title, as applied to the representatives of this Society constituting one of the Examining Boards; also

Resolved, That in classifying candidates for examination and applicants for license, the said Board of Medical Examiners use its influence and authority to prevent the said objectionable sectarian epithets from being applied to regular physicians, who by training and education are qualified to employ all proper means for the relief of the afflicted, without restriction or prejudice, and who are independent of allegiance, either implied or avowed, to any sect, dogma or school.

On motion of Dr. S. Birdsall, Susquehanna, the following was adopted:

WHEREAS, A bill for the establishment of a National Bureau of Health in the Department of the Interior is now pending in Congress; therefore

Resolved, That the Medical Society of the State of Pennsylvania desires hereby to express its entire and cordial approval of said bill, and to record its opinion that the sanitary interests and general welfare of our country will be greatly promoted by the enactment of the proposed law.

Resolved, That we hereby respectfully request the representatives of our State in the National Legislature to aid the passage of said bill by their earnest and active support.

Resolved, That our Secretary forward a copy of these resolutions to each United States Senator and Member of the House of Representatives from the State of Pennsylvania.

THIRD DAY—AFTERNOON SESSION.

DR. G. DE SCHWEINITZ, Philadelphia, read the "Address in Ophthalmology." He strongly indorsed the action of the Ophthalmological Section of the American Medical Association, in urging the passage of a law, making it the duty of a midwife or nurse having charge of infants, to report all cases of ophthalmia neonatorum or sore eyes to the health officer or other qualified person in each city, town, etc.; 70 per cent. of blindness in infants is caused by this disease and it should be prevented. The well-known treatment by a physician at a sufficiently early period rarely fails to result in a cure so that blindness is prevented. He alluded in detail to other forms of eye trouble and the appropriate remedies.

A paper was read by DR. S. L. ZEIGLER on

CORNEAL ULCERS TREATED BY THE GENERAL PRACTITIONER.

Simple corneal ulcer is not necessarily dangerous, but may seriously affect vision; especially when central. Lacrymo-nasal lesions are the immediate cause. Gastro-intestinal disorders from errors in diet are the remote cause. Constitutional dyscrasiæ may be the predisposing cause. If septic materials are present in the ocular cul-de-sac a break in the corneal epithelium will court infection and subsequent ulceration. To summarize: Simple corneal ulcer is a purely local inflammatory process, arising chiefly from infection by septic secretions, and originating in lacrymonasal lesions. The treatment is: 1, use a mild, antiseptic eye-wash in the eye, a mydriatic if necessary, and hot applications when indicated; 2, treat the nose locally with tr. benzoin comp., and the use of a cleansing spray; 3, improve the hygiene, regulate the diet and give salt water baths.

A paper was read by DR. HORACE FOX, on

SYMPHYSEOTOMY AND VARIOUS OTHER PROCEDURES IN THE DELIVERY OF PREGNANT WOMEN WHEN THE PELVIS IS CONTRACTED AND DEFORMED.

Symphyseotomy, as performed by its present adherents, is not based on sound theoretical and practical grounds, nor is it confined to the limits of its *demonstrable use*. When the sacro-pubic diameter measures three and three-fourths inches or above and we have *any* of the various presentations or positions, other measures besides symphyseotomy will relieve the jeopardous condition of the lives of the mother and child. When the sacro-pubic diameter measures between two and three-fourths inches and three and three-fourths inches *and the woman is in the active stage of labor*, symphyseotomy should be performed, but should such a pelvic contraction be discovered before the setting in of labor, premature labor has many greater advantages, and should unhesitatingly be performed in preference to permitting the woman to go to full term and then performing symphyseotomy. When the sacro-pubic diameter measures under two and three-fourths inches, Cæsarean section or the Porro operation should be preferred.

DR. CHARLES H. BURNETT, of Philadelphia, read a paper entitled:

CHRONIC TYMPANIC VERTIGO; ITS RELIEF BY REMOVAL OF THE INCUS,

in which he showed that the vertigo so often attending chronic catarrh of the middle ear, is due to impaction of the stapes in the oval window, and pressure thence through the labyrinth-fluid upon the motor filament of the auditory nerve. Impaction of the stapes is due to the retraction of the membrana tympani and the auditory ossicles, brought about by sclerosis and synechiæ, and *not* to disease of the semicircular canals. Hence the name, "Ménière's disease," for this malady is a misnomer, since it was applied by Ménière to an affection of the semicircular canals. As the vertigo from chronic catarrh of the middle ear is due to a lesion of that cavity, Dr. Burnett suggests for this form of aural vertigo, the name of "chronic tympanic vertigo," as being more accurate and more distinctive. In fact, Ménière's disease is something like hydrophobia, rarely if ever occurring, but being confused with some other disease, whereas chronic tympanic vertigo is of frequent occurrence and, though easily diagnosticated by the aurist, is often mistaken by the general practitioner for "biliousness," "epilepsy," "neurasthenia" and even apoplexy.

As this form of ear-vertigo is due to impaction of the stapes in the oval window, surgical liberation of this ossicle, by removal of the incus, is the only means of cure. The tinnitus and deafness always accompanying chronic tympanic vertigo are also relieved by this operation, which can be performed only upon the patient under a general anesthetic, when the ear is to be illuminated by an electric forehead-lamp.

Four cases, the latest in a series of twenty operated upon recently by Dr. Burnett were then given, showing the satisfactory results of this operation, which is unattended by any inflammatory reaction.

On motion of DR. J. MONTGOMERY, Chambersburg, it was

Resolved, That no physician or surgeon shall be compelled to give testimony against his patient in cases where he has received confidential communications from said patient, unless the same shall be raised by the patient.

On motion, this was referred to the Legislative Committee.

The following officers were elected for the ensuing year: President, John B. Roberts, of Philadelphia; Vice-Presidents, Drs. S. C. Stewart, of Clearfield County; J. A. Lippincott, of Allegheny County; J. H. Wilson, of Beaver County; R. Armstrong, of Clinton County; Secretary, W. B. Atkinson, of Philadelphia; Assistant Secretary, H. G. Kreutzman, of Franklin County; Treasurer, G. B. Dunmire, of Philadelphia. George S. Hull, of Chambersburg, Chairman Committee on Arrangements.

J. W. Groff, of Montgomery County, is delegate to the New York State Medical Society; C. A. Rather, of Dauphin County, to the New Jersey Medical Society, and A. C. Wentz, of York, and P. R. Koons, of Cumberland, to the Maryland Medical Society.

President Roberts made the following appointments for next meeting: Dr. C. L. Stevens, of Athens, Bradford County, to read Address on Surgery; Dr. Isaac C. Gable, of York, Address on Medicine; Dr. Van B. Ulrich, of Chester, Obstetrics; Dr. F. X. Dercum, of Philadelphia, Mental Disorders; Dr. Hildegarde H. Longsdorf, of Carlisle, Address on Hygiene; Dr. Lewis H. Taylor, of Wilkesbarre, Address on Otology.

The entertainments provided consisted of luncheon given daily in succession by the Medico-Chirurgical College, the Polyclinic and the University of Pennsylvania. A reception was given by the Medical Club at the Hotel Bellevue, one by the Faculty of the Jefferson at the Academy of Fine Arts, and a theater party followed by a reception by the Philadelphia County Medical Society. On the Saturday following adjournment, the members of the Society and their friends were tendered a complimentary excursion to Asbury Park, where they were handsomely entertained at the Hotel Brunswick by the Mayor and citizens of this charming city by the sea. The visitors were delighted with the location and great facilities for entertainment, and went away fully prepared to indorse the invitation which will be presented at San Francisco for the next meeting of the American Medical Association to be held at this place in June, 1895.

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above subscription the weekly JOURNAL of the Association will be forwarded regularly.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

SATURDAY, JUNE 2, 1894.

THE DUTIES OF MEDICAL MISSIONARIES IN THE ORIENT.

The following autobiographical paragraphs have been selected from several such published in *Medical Missions* for March, 1894, in answer to questions by a society of London medical students. That society contains not a few young men who are fitting themselves for the foreign field and is known as the "Medical Missionary Association of the London Hospital." In answer to the question, What sort of work does the missionary get? DR. SIDNEY HODGE, of the Hankow Hospital, replies that he gets every kind of work that he would get at home.

I am family doctor to a large mission; general practitioner to the Chinese public; specialist in every department, and have a wide operative field. I have not done as much as many out here, but if I mention some operations I have done you will have an idea. Amputations—leg, arm, breast, etc. Excisions—knee, elbow, upper jaw. Removal of malignant tumors in various situations. Eye operations innumerable, iridectomies, entropia, etc. And while I am writing there is an amputation at the knee joint, one at the shoulder, and an ovariotomy awaiting me. You will see, therefore, that our work is no child's play. There is an equally wide field in medicine: Fevers, chiefly malarial, always a fair sprinkling of nervous cases, phthisis, pneumonia, rheumatism, with an occasional epidemic of Asiatic cholera, just to keep you awake. Then there is midwifery, always difficult, either version or forceps. The Chinese are difficult and disappointing patients, and any one who comes out here must lay in a large stock of divine patience. The people are ignorant and suspicious. Anything chronic requiring long treatment has a poor chance. They are, however, on the whole grateful patients, and there is splendid opportunity to reach them by conversation when resident in a hospital."

DR. W. P. MEARS, of Foochow, has been largely engaged in training and teaching native students preparatory to their going out as dressers and assistants to the mission hospitals. Writing to the London Hospital students, he shows in a sentence or two the power of the medical missionary element in Chinese mission work:

"Lately a traveling native evangelist has asked that a medical student may be allowed to accompany him, and for this reason—he finds that often after a long day he is refused lodging for the night in village after village, because he is a preacher of strange doctrine, and he must, therefore, walk, three, four, five or more miles further, when he is wearied out, before he can find shelter. On the other hand, he says that he and a medical man together would be willingly received anywhere. I find that this is not a solitary case and that the same difficulty is experienced elsewhere. In time we hope to have men for such itinerant medical work, but at present we have none."

DR. R. L. SCUDDER, of the Arcot Mission, S. India, says of the Ranipet Hospital, of which he has charge:

"Government has placed at our disposal, free of all cost to the mission, a large hospital, where we can administer to the spiritual as well as physical diseases of the people. All that they require is that the medical officer in charge shall give a reasonable attention to his work."

DR. GRACE MACKINNON, of Patna, had in the ten months from November, 1892, to September, 1893, new patients, 3,022; dispensary attendance, 10,156; hospital in-patients, 12; major operations, 11; minor operations, 81; visits to homes, 304.

The foundation stone of the new Medical Mission Hospital at Patna was laid on July 29, 1893, by the Lieutenant-Governor of Bengal.

A French missionary, DR. LIENGME, has his field among the Zulus of Gazaland, a lot of wild and bloodthirsty heathen. He went, on invitation, to visit one of the "kings," and was called upon to practice in the royal family. One of the queens was treated for pneumonia and recovered, fortunately for the missionary. Then the king came forward for treatment for the complications arising from too much "sope" or alcoholic drink. The king entreated the missionary to give him a medicine to have many children. The missionary proceeds to say:

"Medical skill in the Lord's hands has been one of the great means in attracting the king's and his people's favor. When I was known, the sick people came from great distances. One day I cured a deaf man by extracting a cork of wax from his ear. In a few days a number of people with ear diseases came from different parts of the country. The same thing occurred with eye diseases. Many doctors would have envied my opportunities. The consultation and operating room consisted of a tree under whose shade a small bench was fastened on the ground, and two trunks were reserved for the patient's use. Near by was a small tent containing the medicines, and that was all. The patient knelt, lay or sat down. A piece of paper was spread on the ground for the instruments, and the operation was proceeded with. Generally a crowd of natives looked on, unable to conceal their astonishment, and very often their fear.

When a patient after three days was quite restored, only the scar to tell of the tumor, their admiration had no end. 'You are the king of the white men! hé! hé! hé! that man, that is a surgeon!' they would exclaim. I have already told you that sick people came to live near us. At the end of our stay there were over sixty. If I hadn't been obliged to send them away, the number would have speedily increased. I was very sorry to have to send them away. Those poor people couldn't be comforted when they saw that they had come too late. A poor old blind woman had made a five days' journey, and I was obliged to send her home without having done anything to relieve her. Many others who excited our compassion had thus to be sent away. All my medicines were gone; I could not satisfy their entreaties for 'just a little, very little medicine to drink.'

"Some figures will give you an idea of what has been done during our short stay in Gazaland: I had thirty-three operations, of which eight were cataracts, three other eye operations, and four for hydrocele. I removed an inferior maxilla, with necrosis caused by a bad tooth, which a native doctor had tried to extract. The patient appeared in a fearful state; he believed a 'moloye' (witch) had put a rotten bone in his mouth. I operated also on five cases of tumor, which healed by first intention."

He had over 1,400 consultations under the tree or in some neighboring hut.

LIABILITY OF VARIOUS CLASSES OF HOSPITALS AND THEIR PATRONS.

The United States Circuit Court of Appeals, Eighth Circuit, has rendered an exceedingly important decision in the case of the Union Pacific Railway Company v. Artist, decided Feb. 12, 1894, and just reported in the advance sheets of 60 *Federal Reporter*, 365. The Court says that if one contracts to treat a patient in a hospital—or out of it, for that matter—for any disease or injury, he undoubtedly becomes liable for any injury suffered by the patient through the carelessness of the physicians or attendants he employs to carry out his contract. If one undertakes to treat such a patient for the purpose of making profit thereby, the law implies the contract to treat him carefully and skilfully, and holds him liable for the carelessness of the physicians and attendants he furnishes.

But this doctrine has no just application where one voluntarily aids in establishing or maintaining a hospital without expectation of pecuniary profit. If one, out of charity, with no purpose of making profit, sends a physician to a sick neighbor or to an injured servant, or furnishes him with hospital accommodations and medical attendance, he is not liable for the carelessness of the physicians or of the attendants. The doctrine of holding the principal responsible no longer applies, because, by fair implication, he simply undertakes to exercise ordinary care in the selection of physicians and attendants who are reasonably competent and skilful, and does not agree to become personally responsible for their negligence or mistakes. The same rule applies to corporations and to individuals, whether they are engaged in dispensing their own charities, or in dispensing the charitable gifts of others intrusted to them to administer.

One reason why corporations and individuals conducting hospitals supported by charitable endowments and contributions, and operated to heal the sick and injured, but not for profit, are not liable for the negligence of their employes, is, that the moneys in their hands constitute a trust fund devoted to a charitable purpose, and the courts refuse to permit it to be diverted to the very different purpose of paying for the malpractice of their physicians or the negligence of their attendants. Moreover, the corporations or individuals that administer such trust must, after all, leave the treatment of the patients to the superior knowledge and skill of the physicians. They can not direct the latter, as the master may ordinarily direct the servant what to do, and how to do it. If they did do so, the physicians would be bound to exercise their own superior skill and better judgment, and to disobey their employers, if, in their opinion, the welfare of the patients required it. And, finally, the patient is not required to accept the proffered accommodations and attendance. They are but freely offered to him. He may refuse to accept them, and seek other physicians and other accommodations.

What those who charitably furnish hospital accommodations and medical attendance are responsible for is only the exercise of ordinary care in the selecting of the physicians and attendants whom they employ.

Following this statement of principles, the Court of Appeals reverses a judgment rendered by the Circuit Court against the Union Pacific Railway Company for the malpractice of physicians and the negligence of attendants in a hospital maintained by it, for the benefit of its employes. The evidence tended to show that the Company required each of its employes to contribute from his wages twenty-five cents a month towards the support of a medical department, the Company contributing the amount required in addition to the sum thus raised to pay the expenses of this department. The Circuit Court charged the jury that the hospital was not a charitable institution, in any sense that those words are used in law, and that the Company was bound to use reasonable care to see that the treatment given to patients in such hospital was such as was ordinarily given in hospitals of this kind to such patients. This, it is held, was wrong.

The test which determines whether such an enterprise is charitable or otherwise, the Court of Appeals holds, is its purpose. If its purpose is to make profit,

it is not a charitable enterprise. If it is to heal the sick and relieve the suffering, without hope or purpose of getting gain from its operation, it is charitable. Tried by this test, the hospitals and medical department of this Company are a great public charity. They are supported by the voluntary contributions of this great corporation and its employes, without the purpose of profit thereby. And the court says that it does not speak of their "voluntary contributions" unadvisedly. If the individual contribution of twenty-five cents a month was a part of the pay of the employe, the Company could not lawfully take it out without his consent. If he did not consent, then he did not contribute, and the Company still owed him the amount of this assessment. If he did consent, he voluntarily contributed the amount of his assessment. Moreover, it was shown that besides these contributions of twenty-five cents per month from each employe, the Company contributed from $2,000 to $4,000 per month for the purpose of furnishing these hospital accommodations. If it be urged that this gift may have been prompted by an ulterior and selfish motive,—that the Company may have thought that the operation of its medical department would protect it from excessive claims for injuries resulting to its servants—the answer is that the true test of a public charity is not the motive of the donor, but the purpose to which the money given is to be applied.

If a dozen of the employes of this Company had contributed a fund, out of charity, to furnish one of their number, who was injured, with hospital accommodations and medical attendance, they certainly would not have been liable to him for the malpractice of the physicians or the negligence of the attendants they employed. If they had intrusted such a fund to a third person to administer, who, out of charity, contributed to it more largely, and he furnished the accommodations and attendance by the use of this fund, it goes without saying that he would not be liable for the negligence of the physicians or attendants he employed. That the party to whom this charitable gift is intrusted, the party that contributes most liberally to it, and the party that can not by any possibility derive any direct profit or benefit from it, since it is not subject to bodily ailments and injuries, is a corporation, can not extend the limits of legal liability here.

The result is, the Court holds, that the only contract the law implies in such a case as this, is an agreement on the part of the Company to use reasonable care to select and obtain skilful physicians and careful attendants, and if the Company performed that contract it was responsible no further. In other words, it was responsible for the discharge of its own personal duty, and not for the performance of the duties of its employes.

SMOKE AND THE STRIKES.

At first blush the connection between a labor strike and the public health and comfort may not seem very obvious. But the coal famine, which has resulted from the widespread disturbances among the miners, has certainly led to a material abatement of the smoke nuisance and its injurious effect upon the health and happiness of several millions of people. The consequent pressure for economy in the use of coal for fuel has taught a great object-lesson in the value of careful stoking, and the consumer has learned that he can get more heat out of a given quantity of coal, if this is so fed to the furnace as to secure its perfect combustion instead of allowing a large percentage of it to pass off through the chimney in unconsumed carbon and gases.

Experts estimate that a smoky chimney indicates a loss of from 10 to 25 per cent. of the fuel used—the amount varying with the density of the volume of smoke poured out into the atmosphere to poison it with noxious gases, which produce or aggravate many affections of the respiratory apparatus; to settle down on all subjects, animate and inanimate, in a shower of inky, grimy, oily "blacks," destructive alike of good clothes, good looks and good morals; and to shut out the health-giving sunlight, to the injury of eyesight and to the causation of mental and nervous depression and gloomy views on all mundane subjects.

But it is not in the education of the fireman or stoker alone that there is improvement. The value of many mechanical devices for the smokeless combustion of the bituminous coals has been demonstrated, with claimed results of saving in coal bills that remind one of the Celtic logic which induced Pat to buy two stoves instead of one, on the representation of the dealer that one would save half its cost in the year's coal account.

Stationary "plants," locomotives and even tugboats are being fitted with smokeless furnaces which increase boiler capacity and reduce fuel bills; and a Hamburg-American steamer recently arrived at New York, "fitted with furnaces that so completely burn the coal and all the products of its combustion that it requires 30 per cent. less fuel to run it than would be required with ordinary furnaces, and no black clouds pour from the funnels and no cinders fall upon the decks."

Promise of further minimizing of the smoke evil is also to be found in the increasing utilization of the petroleum oils, hydraulic power, compressed air, electricity and gas for manufacturing and even domestic purposes. "Petroleum bricks" are manufactured in France, concerning which Dr. C. W. Chancellor, formerly Secretary of the Maryland State Board of Health, now U. S. Consul at Havre, reports that: "Trials of these bricks as fuel have been made at

Marseilles on several tugs, and it is found that, weight for weight, they develop three times as much heat as the ordinary coal and leave no ashes. It is expected, with some slight change in the furnace, to arrive at still more perfect results, not only in the increased heat, but in the entire suppression of smoke and on the most economical basis, one kilogram of the bricks being equal to four kilograms of coal."

Railroad companies, driven thereto by the coal famine, are equipping their locomotives with petroleum-burning devices; hydraulic power on the most stupendous scale is being developed for the production of electricity, and the use of this agent and of gas for household cooking and heating is daily becoming more common. It is, probably, to these that we must look for our greatest measure of relief from the evils to health and happiness which the smoke nuisance now inflicts.

The beginning of the twentieth century should be ushered in with a total absence of the fuliginous canopy which hangs over these closing years of the nineteenth.

CORRESPONDENCE.

Editorial Correspondence.

GALESBURG, ILL., May 28, 11 P.M.

The ASSOCIATION train left Chicago via Santa Fe line promptly at 5 P.M., May 28. There were ninety persons on board bound for San Francisco, as follows:

J. A. Work and wife, Elkhart, Ind.; Dr. L. Duncan Bulkley, New York; J. B. Roberts, Philadelphia; C. C. Roberts and wife, Philadelphia; Miss Roberts, Philadelphia; Mrs. A. L. Massey, Philadelphia; Miss Massey, Philadelphia; Miss Willard, Philadelphia; Alonzo Garcelon and J. A. Donovan and wife, Lewiston, Me.; Allen Pierson and wife, Spencer, Ind.; Mrs. C. A. Garcelon, Chicago; H. McColl, Lapeer, Mich.; Geo. Davenport, East Randolph, Vt.; C. S. Talbot, Chicago; G. W. Jenkins, wife and daughter, Kilbourn City, Wis.; John L. Crofts, Little Falls, N. Y.; Mrs. Katherine R. Evans and Miss S. E. Clark, West Brattleboro, Vt.; H. D. Holton and wife, Brattleboro, Vt.; C. F. Jenne and wife, Brattleboro, Vt.; Joseph Eastman and daughter, Indianapolis, Ind.; C. W. Foster and wife, Deering, Me.; Ellis Phillips, wife and daughter, New Haven, Pa.; E. B. Lyon and wife, New Britain, Conn.; G. A. Shelton and wife, Shelton, Conn.; Jos. E. Root and wife, Hartford, Conn.; John P. Sharer, Little Falls, N. Y.; B. O. Reynolds, Lake Geneva, Wis.; Foster Pratt, Kalamazoo, Wis.; A. E. Remick, Chicago; F. C. Echelman and wife, Elkhart, Ind.; E. J. Senn, Chicago; Geo. Perkins and wife, Somerset, Ky.; H. M. McKenzie, Elwood, Iowa; L. C. Stephens, Blackville, S. C.; H. M. Starkey and wife, Chicago; E. F. Ingals, wife and two children, Chicago; John B. Hamilton, Chicago; W. E. Quine and wife, Chicago; H. O. Worden, Pittsburg; G. W. McNeil, Pittsburg; Thomas J. Gallaher, Pittsburg; E. H. Small, Pittsburg; D. W. Graham and wife, Chicago; Thos. E. Cunningham, Cambridge, Mass.; Jerome Cochran, Montgomery, Ala.; A. H. Cook, Chicago; E. E. Montgomery, Philadelphia; H. V. Würdemann and wife, Milwaukee; G. Benson Dunmire and wife, Philadelphia; D. R. Brower, Chicago; S. S. Bishop and wife, Chicago; Edmond C. Ingalls, Oak Park, Ill.; E. Wills Kellogg, Milwaukee; E. J. Bush and wife, Platteville; Mark Rowe and wife, Redmon, Ill.; C. E. Cook and wife, Mendota, Ill.; Frank Woodbury, Philadelphia; Harriet Garrison, Dixon, Ill.; J. D. Cotton, Marietta, Ohio; J. T. Cotton, Charleston, W. Va.

Thanks to the thoughtful care of Superintendent Garcelon, of the Pullman Palace Car Company, every comfort was provided. Handsome cars, elegant equipment, and a magnificent Santa Fe dining car, made up one of the finest trains ever pulled out of Chicago. Dr. Donald McLain's special car with a party from Detroit, were at the Chicago depot when we left. Dr. Mulheron, Dr. Stoner, M. H. S., and others were of this party. All regretted it when our train left the depot without them, but as two more Pullmans with delegates from the Southeast were expected to join our train at Burrton, Kan., the railway officers announced that they could not take them, but they may join us at Kansas City. The weather is fine, and so far the trip has been without incident. All were happy in anticipation of a pleasant journey. JOHN B. HAMILTON.

The Difference between the Copyrights on Medical Books and the Patents on Mechanical Appliances.

DETROIT, MICH., May, 1894.

To the Editor:—In the *Medical News* for May 19, our esteemed friend, Dr. Gould, states his view of the difference between the copyrighting of medical books and the patenting of mechanical appliances. Thus he says, "one is payment for instruction, while the other is tribute for permission to use a certain instrument."

The fallacy of this statement is evident. Granted that the book instructs, does not the instrument also instruct? The buyer of the book pays for the brain work of the author, and in like manner the buyer of the mechanical appliance pays for the brain work of the inventor. If both are good articles they will both instruct the profession who use them. Both are teachers. Most medical books introduce into their pages the work of inventors of mechanical appliances, and even introduce cuts of the same. It is said that the book copyright does not set up a monopoly. It is well that this is not believed, else some person would have to pay damages for publishing books without the permission of the person who copyrighted the same. Every physician knows that a medical book is a monopoly to the full extent of the protecting law under which it is issued.

We are surprised that the claim is made that the patenting of an instrument prevents the buyer from being instructed by the same. Every person knows that the sale of such mechanical appliances depends upon the instruction of the profession respecting their uses. Every mechanical appliance of merit is a great educator to the entire profession, even in lines outside of its especial adaptation. It seems perfectly evident that both good books and good mechanical appliances alike teach the medical profession new ideas or old ones in new applications. Bad books and bad instruments also teach by their negative qualities. We are of the belief that the giving of both author and inventor the right to avail themselves of their rights as citizens, in the matter of copyrighting and patenting the products of their brain activities, would promote equity between physicians and advance the general prosperity of the entire profession.

We have searched in vain in all directions for reasons for denying the inventor of mechanical appliances what is granted the medical book writer. We can find absolutely none. It were tardy justice to grant the former his legal rights at this late day, but tardy justice were better than continued injustice. LEARTUS CONNOR, M.D.

NECROLOGY.

E. S. ELDER, A.M., M.D., President-elect of the Indiana State Medical Society, and for fourteen years past its Secretary; Dean of the Medical College of Indiana and Professor of Practice and Principles of Medicine in the same college; late member of the State and of the City Boards of Health; member for ten years past of the Clinical Staff of the City Hospital and City Dispensary; member of the Indiana Academy of Science; member of the American Medical Association; late President of the Mitchell District Medical Society, and of the Shelby County and Rush County Medical Societies; a Knight Templar and a thirty-second degree Scottish Rite Mason, Steward and Elder in the Central Avenue M. E. Church of Indianapolis; Business Manager of the *Indiana Medical Journal* and examiner for various insurance companies, died in Indianapolis May 19, 1894, of peritonitis following intestinal obstruction. Dr. Elder, it will be seen, filled a large place in Indiana medicine. He was a self-

a second circular be sent out warning ladies against long dresses and advising them to have their skirts cut sufficiently short to avoid all danger of contagion. These gentlemade man, the son of a physician, Dr. S. F. Elder, of Hillsborough, Ind., where Dr. Elder was born in 1841, of English ancestry. At 18 years of age, Dr. Elder was a school teacher. During the war he was Provost Marshal for the 6th District. He graduated from the Medical College of Ohio in 1867, practiced in Morristown until 1875, when he attended lectures in Bellevue Medical College, New York, taking the degree in 1876. He then located in Indianapolis where he practiced to within two weeks of his death. Dr. Elder was a born organizer and so became a valued member of every society and enterprise with which he was connected. He was particularly prominent in the State Medical Society and knew by name and sight nearly every one of its 1,200 members.

ALFRED A. LUTKINS, M.D., of Jersey City, died May 9, aged 68 years. He was a retired practitioner of wealth and social prominence. He was a licentiate of the New Jersey State Medical Society of 1848, and an M.D. of the University Medical College in 1878. During recent years he gave up practice except among his oldest clients.

GEORGE W. BROWN, M.D., Secretary of the New Jersey State Medical Board, and whose home is at Long Branch, died on May 12 of consumption, at the Trenton House, Trenton, N. J., where he had been a guest since January 22, last. He was 36 years old, and was graduated at the College of Physicians and Surgeons in the class of 1879.

WILLIAM B. DODSON, M.D., who for several years has been known as the oldest living graduate of Jefferson Medical College in Philadelphia, died in that city on May 11. He was 93 years old. Although the greater part of his practice was in the South, where he had lived since his graduation from college, he was recognized by physicians generally as an authority in operative surgery. The date of his diploma was the year 1834.

ROBERT FULLER, M.D., of Schenectady, N. Y., died May 9, of pulmonary tuberculosis. He was 72 years of age, a graduate from the Albany Medical College, dating from about fifteen years ago. He was a graduate in arts at Union College, class of 1840.

W. C. WILLIAMS, M.D. of Cheshire, Conn., May 21.—— Thomas Wilkinson, M.D., of Ann Arbor, May 26. He was a graduate of the Vermont Medical College, and served in the War of 1812. He was 95 years of age.

BOOK NOTICES.

Medico-Chirurgical Transactions.—Published by the Royal Medical and Chirurgical Society of London. Vol. vii, (second series) London: Longmans, Green & Co. 1893.

The transactions of this Society, always of interest, have this year a melancholy attraction in the last presidential address of the late Sir Andrew Clark. A curious custom of the Society is one which condemns its President each year to read in full the biographical notices of the deaths of members. This year, Sir Andrew objected to the custom, which he notwithstanding complied with. In America the duties of preparing necrology reports are relegated to a special committee, whose report, the reviewer is bound to add, is usually read by title, and the members read the notices in the Transactions. The papers in this volume include: I, Amputation for Diabetic Gangrene, by Rickman J. Godlee; II, on The Advantages of an Amputation Through the Thigh, either as a Preliminary Operation to, or in some Cases, *instead of*, Amputation through the Hip, where the Joint is itself Diseased and the Patient in very bad Condition, by H. G. Howse; V, The Radical Treatment of Severe Talipes Equino-Varus, by Edmund Owen; XX, Use of Atropin in Cholera, by T. Lander Brunton; and XXI, A Case of Malignant Disease of the Thyroid Gland with most Unusual Course, by Felix Semon. All the papers are interesting, and the volume as a whole most instructive.

Transactions of the Forty-eighth Annual Meeting of the Ohio State Medical Society held at Put-in-Bay, June 28, 29 and 30, 1893. Cincinnati. 1893.

The particular feature of interest in this report is the address of the President Dudley P. Allen, M.D., on the History of Early Legislation and Societies in Ohio. From this report it is learned that the first State Society of Ohio was "the result of an Act of Assembly," passed January 14, 1811. A medical practice Act was also passed at that session, and in 1812 an Act to incorporate medical societies was passed and the State divided into seven medical districts. The chief function of the State Society was to regulate the practice of medicine and to supervise the district societies. An interesting account of the work of the societies is given in the paper, and at the meeting of 1837 is a paper by Dr. Willard Parker, then of Cincinnati. The present Society was formally chartered on Washington's birthday, 1848, although for some years it had been in existence. The paper contains much of historical interest. There are many interesting papers on medical and surgical topics, and the volume is highly creditable to a Society already distinguished by the high scientific value of its papers and discussions.

The Diseases of the Will. By TH. RIBOT, Professor of Comparative and Experimental Psychology in the College of France, translated by Merwin-Marie Snell. Pp. 134. Chicago: The Open Court Publishing Co. 1894. Price 75 cents.

This interesting little book will be of interest to all alienists. There are five chapters. Chapter 1 is on Impairments of the Will—Defect of Impulse; Chapter 2, on Excess of Impulse; Chapter 3, on Impairment of Voluntary Attention; Chapter 4, The Realm of Caprices; Chapter 5, The Extinction of the Will, and a Conclusion. The book is interesting, original and scientific. The translation is an excellent one.

Essentials of Anatomy, including the anatomy of the viscera, arranged in the form of questions and answers, prepared especially for students of medicine. By CHAS. B. NANCREDE, M.D. Pp. 388. Fifth edition. Philadelphia: W. B. Saunders.

When a book has passed to its fifth edition, it has passed beyond the reach of the reviewer, for it is then evident that it has found an appreciative public.

PUBLIC HEALTH.

Contagion of Influenza.—Investigations of the epidemic of influenza, or "grip," which has prevailed during the last four years, have adduced an overwhelming mass of evidence in proof of the contagiousness of the disease. The English commission concludes that it is not infectious in the sense that it is conveyed through the atmosphere, although the contagion is carried in the breath of the patient; but, like some of the exanthemata, it requires contact or intimate proximity with those afflicted, for its spread. The preventive lesson is obvious.

Osculatory Contagion.—The Sanitary Committee of the Orange, N. J., Board of Health, has recommended that a circular be issued to the people "urging every one to desist as much as possible from kissing, as the touching of lips is likely to convey contagion; one of the persons might have disease germs in the throat and communicate them to the other." It was also proposed by the same Committee that

men are inviting destruction. The exercise of sanitary authority is none too well liked at best; when it excites ridicule its days are numbered. The advice against long dresses might be defensible if it were necessary; as a matter of fact, women whose health is worth preserving don't sweep the streets with their dresses. As for the other proposition—that may be safely left with the young people of both sexes.

Epidemic Diseases.—The usual seasonal lull has set in with respect to smallpox. There are still occasional new cases in the infected districts, as there will probably continue to be in diminishing numbers, during the summer months. To what extent the contagion has been destroyed in the cities and places thus far visited and what amount of vaccinal protection has been secured as a result of the recent "smallpox scare," will be learned upon the advent of cold weather next fall. For whatever the figures are worth, reports show an enormous amount of vaccination performed during the past few months. The Chicago Health Department, for instance, reports: Number of vaccine points used between Dec. 1, 1893, and April 30, 1894, 321,400; number used between May 1 and May 31, 449,000; total used between Dec. 1, 1893, and May 31, 1894, 770,400. At present the Department is using an average of 14,500 points per day, and attributes the recent reduction in the number of new cases to this work. For the first seventeen days of May the daily average of new cases in the city was 30; during the rest of the month, and notwithstanding the low temperature, the daily average was 11—a reduction of 61.7 per cent.

Asiatic cholera seems to be still spreading in Western Russia, but elsewhere in Europe there are no authentic accounts of its existence. It is now exceedingly doubtful if the Lisbon outbreak was really Asiatic cholera. Drs. Pestana and Bettencourt have presented their report to the Portuguese government, in which they assert that the bacillus which they discover in the discharges of the patients is identical with that found in the Lisbon drinking water, but is not the same as that to which Prof. Koch and other bacteriologists ascribe Asiatic cholera. It is certain that the low rate of mortality reported in the Lisbon epidemic is not that of the fatal Indian pestilence. The Spanish government, whose commission unhesitatingly pronounced the disease to be Asiatic cholera, still continues quarantine precautions, not only on the Portuguese frontier but against certain French ports, the latest being the town of St. Nizaire at the mouth of the Loire, a port doing considerable business with Mexico and the West Indies. The existence of cholera at Villa Real is officially denied.

Yellow fever, which has been epidemic at Rio de Janeiro during the past three months, is reported decreasing in the number of cases and in virulence. A steamer from Rio, April 13, arrived at Trieste, Austria, May 26, having lost her captain and four other officers from yellow fever during the voyage.

Railway Sanitation.—Recent investigations, both in this country and abroad, into the contagiousness of the dust and atmosphere in railway coaches, have awakened new interest in the subject of the sanitation of railway travel, first agitated by the late Dr. Rauch many years ago. In this country many State Boards of Health now exercise a supervision of railways in this direction, and enforce cleanliness about stations, the proper disposal of excreta, a pure water supply and frequent inspections of depots, buildings, outhouses, grounds, feed yards, cattle pens, etc., in order to discover and correct unsanitary conditions.

In the sanitation of trains the following points are insisted upon:

"Purity of water furnished passengers for drinking; not only should its source be closely scrutinized, but the after care of it should be kept in mind. In this connection attention is called to the disgusting and dangerous method in vogue for supplying water tanks with ice. Where these tank are charged from the top, the ice, after it is broken to suitable size, is handled at least twice by men with dirty, begrimed and possibly infected hands; where the ice is brought into the cars, by the dirty hands of at least one workman. This practice should be broken up, not only for the sake of cleanliness, but because there is real danger of infecting the water supply of trains. Water tanks should be thoroughly cleaned at frequent intervals, and scalded inside.

"Passenger cars should be kept in the cleanest possible condition. The practice of sweeping and dusting cars en route when occupied is reprehensible; it is most disagreeable to passengers, and should be stopped, as the dust so raised may oftentimes be infected. Instead, they should be cleaned by damp mops and cloths.

"Each car should be provided with a reliable thermometer, and conductors should be instructed to keep their cars heated in winter or cool weather not above 70 degrees nor below 60 degrees F. Conductors should also be required to pay special attention to the ventilation of their cars. Urinals and water-closets should be thoroughly cleaned, and flushed with a disinfectant solution at the end of each trip. The floors of water-closets should be mopped with a disinfectant solution."

Causes of Smallpox Epidemics.—In answer to a request from one of the editors of the local press, for information concerning the smallpox epidemic, Dr. A. R. Reynolds, Health Commissioner of Chicago, has furnished a lengthy paper, which is, in effect, an argument and an appeal for continuous and general vaccination, as applicable to the country at large as to the city of Chicago.

The questions which Dr. Reynolds essays to answer are as follows: "What were the causes of this outbreak? Were they avoidable? Have the proper measures been enforced to arrest the progress of the outbreak? What is necessary to prevent a recurrence of such outbreaks? What are the prospects for the immediate future?"

Such passages in the answers to these questions as are of general interest are here given:

1. As to causes: It is unfortunately the fact that in this country general vaccination is secured only through the immediate dread of smallpox, as during a widespread outbreak of the disease—a so-called "epidemic." The last general vaccination, not only in Chicago, but throughout the United States, was during the epidemic of 1881-3. About ten years prior to that—namely, during the epidemic of 1871-4—vaccination was also general, as it was during the epidemic following the close of the civil war. In the intervals between these periods smallpox occurred only sporadically and caused little or no alarm. In the absence of this menace, vaccination was neglected until another general outbreak caused it to be resorted to.

While it is incontestably true that vaccination secures immunity from smallpox in an immense majority of cases, it is also true that the degree of susceptibility of the smallpox contagion varies with the individual. This is shown by the fact, observed long before the days of Jenner, that while, as a rule, one attack of smallpox secures against a subsequent attack, nevertheless there are persons so susceptible to the contagion that they are attacked a second or third time or even oftener. . . . . .

What is true of these exceptions to the rule that one attack of smallpox is a preventive of a subsequent attack is also true of vaccination—with this additional limitation: That the protective power of vaccination is impaired by the lapse of time in a large number of individuals. As the result of experience and observation the best authorities have fixed the period of five years as the practical limit beyond which it is not safe to rely upon a given vaccination.

During the intervals between these general vaccinations there is a steadily increasing number of individuals susceptible to smallpox, made up of those born during the interval and not vaccinated, of those in whom vaccination has lost its protective power and of unvaccinated immigrants and others coming into the community. Added to these are the hypersusceptible individuals whom neither repeated vaccinations nor a previous attack of smallpox will protect. . .

The first cause, then, of the present outbreak, was a ten years' aggregation of individuals susceptible to the smallpox contagion and the second cause was the introduction of the contagion—the application of the spark to the magazine.

2. Were these causes avoidable? In the absence of general and continuous vaccination—no. Without such stringent governmental control of the individual as obtains in some European countries, vaccination can not be made com-

pulsory, except during an alarming prevalence of smallpox—when, indeed, vaccination becomes voluntary and not compulsory.

In this country the extent of the vaccinal protection of a community is the measure of its intelligence. It is not the better sanitary environment of our best residence districts alone that secures practical immunity from smallpox to their inhabitants; it is their active appreciation of the virtue of vaccination. The disease is as virulent and as deadly to-day among the vaccinally unprotected of all classes as it was before the discovery of Jenner, when the pock-marked face, the hideous deformity of eye and nose, and every feature, was as common among the nobility as among the denizens of the slums.

And here lies a duty of the public press: To exploit the value of vaccination and to urge its general and continuous enforcement. If it is not generally and continuously enforced, there is only one other method of preventing the recurrence of smallpox outbreaks whenever the aggregation of unprotected is great enough. That method consists in the maintenance of a non-intercourse quarantine against any infected place when the disease appears in this country. This is impracticable. There have been, since this epidemic began, a total of twenty-five States affected, exclusive of Canada and Mexico. . . . . Under the circumstances and conditions the outlook was clearly unavoidable. . . . .

4. What is necessary to prevent a recurrence of such outbreaks? . . . . Only by general and continuous vaccination can any community hope to escape outbreaks of smallpox. It is one of the oldest known diseases afflicting mankind; it is one of the most widely diffused, being epidemic in Africa and thence carried by commerce to every quarter of the globe; it is one of the most virulent and one of the most persistently contagious of diseases. Therefore we are likely to have its contagion, like the poor, always with us; and wherever the contagion finds a sufficient number of susceptibles there will be set up an epidemic outbreak.

The only known means to prevent such a disaster is by preventing the aggregation of susceptibles, and that this can be done by general and continuous vaccination is a demonstrated fact. It has been abundantly proven that just in proportion as vaccination is efficiently and properly performed—which implies its necessary repetition—it markedly diminishes mortality from smallpox; it renders smallpox a mild disease as compared with the disease in the unprotected; it is an almost absolute security against death from smallpox. And, on the other hand, it is just as incontestably proven that (in the words of the eminent English sanitarian, John Simon): "Wherever vaccination falls into neglect, smallpox tends to become again the same frightful pestilence it was in the days before Jenner's discovery; that wherever vaccination is universally and properly performed smallpox tends to be of as little effect as any extinct epidemic of the Middle Ages."

MISCELLANY.

The Board of Health of Dubuque, Iowa, have decided to burn the present building used as a pest house and to establish a new one on a boat in the river.

Gifts to Hospitals.—The will of William F. Sayles, of Pawtucket, R. I., includes bequests of $16,000 each to the Rhode Island Hospital and to the Rhode Island Homeopathic Hospital. These donations are to take the form of endowments of free beds, which will in perpetuity bear the names of the members of his immediate family.

The Red Parasol.—The fashionable "fad" of the red parasol is now defended on the ground that it is an efficient freckle preventer—the actinic rays of the sun, which it is claimed are the cause of the pigmentation, being intercepted in passing through a red medium. The swell practitioner will not neglect this obvious hint; he will see to it that the ephelidal disfiguration is duly prevented—whenever the ruddy hue suits the complexion.

Every Soldier His Own Surgeon.—It is now predicted that the wounded in the next war will be largely left to their own resources, because the surgical service has become so unwieldy that it must be greatly reduced. Archibald Forbes, the famous war correspondent, grimly sums it all up in the phrase: "Væ vulneratis!" Color is lent to this view by the fact that the British war office is considering a proposition that all soldiers be instructed in the elements of anatomy and physiology in order that they may be able promptly to stop the flow of blood from a leading artery. The proposer of the scheme also offers the suggestion that every soldier shall have the leading arteries mapped out on his body by dotted lines tattooed in India ink.

Scientific Cooking.—Not content with her activity in other directions, the advanced woman is invading the doctor's realm by efforts which, in the measure of their success, must rob the profession of a lucrative class of practice. She proposes to abolish dyspepsia by substituting scientific cooking for the ignorance which now rules the American kitchen, and is setting up "Rumfords" in universities, colleges and academies all over the land. In Boston, which is, as usual the center of this new crystallization of social forces, she has just held an exhibition of household economics, of which a feature was the practical demonstration, as given at the World's Fair last summer, of cooking by electricity, the plant consisting of oven, chafing dish, coffee pot, tea kettle, broiler, saucepan and hot plate. At this exhibition Edward Atkinson's Aladdin oven—the oven of the lamp—was also exploited as an instrument that the cook of to-morrow will not be able to do without.

Journalistic Enterprise.—Under this heading the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION says: "We congratulate our esteemed contemporary, the *New York Medical Record*, on its cable reports of the Eleventh International Medical Congress. The first instance of the kind, we believe, attempted in American medical journalism." While thanking our esteemed contemporary for these kind words of appreciation, we beg leave to say that is not the first instance of the kind, for a reference to the files of the *Medical Record* will show that cabled reports of the Copenhagen meeting in 1884, and of that in Berlin in 1890, were also presented to our readers.—*N. Y. Medical Record.*

A New Device.—Dr. Byron Robinson, of Chicago, announces a new device for intestinal anastomoses. It consists of two metal discs around whose circumference there is a groove. In the groove is placed a hollow rubber tube. The two discs are clamped together with a ratchet or spiral screw. The principle on which the device works is the same as Dennan's cylinders. The gut is gradually necrosed through by slow elastic pressure. The rubber, tube and pressure can be so controlled that the circular line of union may be of determined width. The elastic pressure avoids lateral fistula from too rapid or too violent force. The device is called the "rubber-faced disc."

The Nuisance of Carpet Beating in Populous Sections.—One of our contemporaries has the following suggestion as to carpet-beating in cities: "We have often been asked by citizens how articles to be cleaned should be treated without beating, and we beg to suggest that if they were spread upon the grass and thoroughly swept with a stiff broom moistened with water with which a little ammonia has been mixed, the object would be most thoroughly accomplished and one of the most dangerous and disagreeable nuisances to which our citizens are now subjected entirely abated. Articles of clothing should be hung upon a line and brushed with a hand-broom treated in a similar manner." In the country, it matters not about the shaking out of household filth, such as is deposited by myriad footsteps, but in cities the matter becomes a nuisance, dangerous and detrimental to the public health. This latter statement is embodied in the sanitary code of more than one of our cities many years ago, and long prior to the introduction of bacteriologic considerations. From the point of view of the bacteriologist, the wisdom of having a distinct prohibition against the reckless distribution of house-dust is undoubted. There is no record yet made up as to the exact numerical proportion of pathogenic germs, but we are prepared to take sides with those who hold that one of the filthiest things in nature is the dirt beaten out of a dirty carpet.

Royal Invalids.—So momentous are the events, affecting the lives of millions, that hinge upon the state of health of a few personages in Europe, it is no wonder that the condition of a royal larynx, the neuralgia of an imperial tympanum, or the sequelæ of an attack of grip in a monarch should be the perennial themes of speculation and the occasions for sensational utterances. "Caligula, a Study of the Madness of a Roman Cæsar," is the latest contribution to the literature of sick royalty. Claimed now to be a purely historical study, it has been denounced in Berlin as a scandalous document, intended to prove the Emperor William insane, and journals have been confiscated for attempting to give it publicity.

In the pamphlet, Caligula had inherited epilepsy from Germanicus, his father, a Crown Prince and popular soldier who suffered from an insidious disease that eventually carried him off. This is intended, it is asserted, for Emperor Frederick, while the grandfather, King William, is depicted under another pseudonym, and Bismarck figures as Marcus, a great statesman who had served Caligula's father and grandfather successfully and faithfully in building up a great empire only to be banished when Caligula ascended the throne. The Emperor's traits are accurately portrayed—his deformity of limb, his affection of the middle ear, his attacks of *petit mal*, his insomnia, feverish activity, fondness for military and naval display, even to his peculiarities of speech and drastic paraphrases of classical quotations.

While the pamphlet has not been seized and its author has not, as yet, been molested, the publication has caused such a profound sensation that an authoritative statement is made that "Emperor William is in better health, mentally and physically, than ever before; that for eighteen months he has not suffered pain in his neuralgic ear, and for a year he has not been troubled with insomnia; that his face is fuller and browner than ever, his stride is quick and springy, and his greetings to the people always betray good spirits." Whereupon the *quid nunes* murmur:

"Methinks the lady doth protest too much."

Meanwhile, it is well known that King Humbert, of Italy is afflicted with cancer of the larynx, almost identical, as to location and character, with that of the late Emperor Frederick, William's father,—the disease of which Gen. Grant died and which carried off the British Ambassador at Rome last year. And as a sequela to his recent attack of the grip, Alexander III, Emperor of Russia, has developed symptoms of a permanent affection of the lungs so serious in its nature as to render necessary a change of the imperial residence to Kiev, where the climate is more favorable than at St. Petersburg.

Philadelphia Notes.

THE TRUSTEES of the Jefferson Medical College held a meeting May 21, when they discussed the question of reorganization, and the appointment of a Provost, as proposed by the Alumni Association, and decided to postpone further consideration to a subsequent meeting. The next regular meeting will be held in September when final action will probably be taken. The impression is that the Trustees are averse to making this change of management. Dr. S. MacCuen Smith was elected Clinical Professor of Otology; W. Joseph Hearn, Clinical Professor of Surgery; and E. P. Davis, Clinical Professor of Obstetrics.

EXPEDITIOUS EXAMINATION OF SPUTUM FOR TUBERCLE BACILLI.—The following method is followed in the laboratory of the Medico-Chirurgical College, by Prof. Laplace:

1. Apply a small speck of recent sputum to a cover-glass, spread it out thin, and let it dry by waving it to and fro in the air.

2. Slightly heat the cover by passing it through the flame of an alcohol lamp, three times, rather slowly.

3. Stain the portion of now thoroughly dried sputum by pouring upon it a few drops of the red stain (Ziehl's solution, composed of fuchsin, 1 part; carbolic acid, 5 parts; alcohol 10 parts; water, q. s. to make 100 parts). While the solution is on the cover-glass, hold it in the flame of the lamp and heat until the vapor rises.

4. Decolorize at once, by immersion in water acidulated with nitric acid.

5. Pour some alcohol over it, and finish decolorizing by repeated immersions in the acidulated water, if required.

6. Pour some distilled water over the specimen and wash it until clear and apparently colorless.

7. Color the background by staining with methylene blue solution.

8. Dry the specimen.

9. Apply to slide and mount in Canada balsam.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from May 19, 1894, to May 25, 1894.

Major PETER J. A. CLEARY, Surgeon, is granted leave of absence for four months.

Capt. WILLIAM G. SPENCER, Asst. Surgeon, having been found by an Army retiring board incapacitated for active service, will proceed to his home.

Lieut.-Col. FRANCIS L. TOWN, Deputy Surgeon-General, is relieved from temporary duty in the office of the Medical Director, Department of the Missouri, and will report in person to the Commanding General, Department of Texas, for duty as Medical Director of that Department.

Capt. ALONZO R. CHAPIN, Asst. Surgeon, is relieved from duty at Ft. Hancock, Texas, and ordered to new Ft. Bliss, Texas, for duty.

First. Lieut. FRANCIS A. WINTER, Asst. Surgeon, is relieved from duty at new Ft. Bliss, and from temporary duty at old Ft. Bliss, Texas, and ordered to Ft. Hancock, Texas, for duty at that post.

Capt. GEORGE MCCREERY, Asst. Surgeon, will, upon the abandonment of Ft. Sidney, Neb., report in person to the commanding officer, Ft. D. A. Russell, Wyo., for duty at that post.

Capt. ROBERT R. BALL, Asst. Surgeon, is relieved from temporary duty at Ft. Monroe, Va., and ordered to Ft. Adams, R. I., for duty, relieving Capt. WILLIAM C. BORDEN, Asst. Surgeon. Capt. BORDEN, on being thus relieved, is ordered to Ft. Snelling, Minn., for duty at that post, relieving Capt. CHARLES F. MASON, Asst. Surgeon. Capt. MASON, on being thus relieved, will report in person to the Superintendent of the U. S. Military Academy, West Point, N. Y., for duty at that post.

CASUALTY.

Col. JOSEPH C. BAILY, Asst. Surgeon-General, died May 16, 1894, while *en route* from El Paso to San Antonio, Texas, in the line of duty.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending May 26, 1894.

Asst. Surgeon B. R. WARD, from the Bureau of Medicine and Surgery, and to the "Vermont."

Surgeon C. A. SIEGFRIED, ordered to the "Cincinnati."

LETTERS RECEIVED.

(A) American Druggist Publishing Co., New York, N. Y.; Akins, W. T., Decatur, Ill.; Atkinson, W. B., Philadelphia, Pa.; Allison, H. E., Fishkill, Landing, N. Y.

(B) Browning, C. C., Messina, Cal.; Boise, Eugene, Grand Rapids, Mich.; Berger, L. C., Philadelphia, Pa.; Burnett, W. E., Norris City, Ill.; Bacon, L. C., St. Paul, Minn.; Banta, C. F., Eureka, Ill.; Brien, C. D. V., Ackley, Iowa.

(C) Christian, G. W., Houston, Texas; Chaillé, S. E., New Orleans, La.; Cittadino, N., New York, N. Y.; Canfield, W. B., Baltimore, Md.

(D) Dean Medical College of Indiana, Indianapolis, Ind.; Dunglison, R. J., (3) Philadelphia, Pa.; Dow, Edmund Scott, Allston, Mass.; Davis, E. W., Howard, Kan.

(E) Ewing, W. Brown, Wernersville, Pa.

(F) Fox, L. W., Philadelphia, Pa.; Fitz, R. H., Boston, Mass.; Furniss, S. A., Indianapolis, Ind.; Fralich, F. J., Louisville, Ky.; French, Pinckney, St. Louis, Mo.

(G) Green, H. L., Chicago, Ill.; Griggs, Clarence, Ottawa, Ill.

(H) Hotz, F. C., Chicago, Ill.; Henkel, F. W., Chicago, Ill.; Hibberd, Jas. F., Richmond, Va.

(I) Irish, James D., Madison Barracks, N. Y.

(K) Kuhlmann, Helene, Buffalo, N. Y.; Kukley, C. A., Toledo, Ohio; Kingsbury, D. W., Nanticoke, Pa.

(M) Modern Medicine Pub. Co., Battle Creek, Mich.; McLellan, E. A., Boston, Mass.; Myers, N. Ray, Wanamie, Pa.; Magruder, G. L., Washington, D. C.

(N) Neptune, J. W., Elmo, Kan.

(P) Pratt, J. W., Boston, Mass.; Pilcher, Jas. E., Youngstown, N. Y.; Pischl, Kasper, San Francisco, Cal.; Pantagraph Ptg. and Sty. Co., Bloomington, Ill.; Patton, R. S., Monmouth, Ill.; Paquin, P., Lebanon, Mo.; Patch, E. L., Stoneham, Mass.; Playter, Edward, Ottawa, Canada.

(R) Rochelle, W. F., Jackson, Tenn.; Ransohoff, Joseph, Cincinnati, Ohio.

(S) Snodgrass, H. L., Buffalo, N. Y.; Schulze-Berge & Koechl, New York, N. Y.; Short, J. L., Rolla, Mo.; Souchon, Edmund, New Orleans, La.

(T) Townsend, R. B., Glenwood, Mills Co., Iowa; Turpin, T. J., Tallulah, La.; The Troy Buggy Works, Troy, Ohio.

(V) Valentine Meat Juice Works, Richmond, Va.

(W) Woodruff, L., Alton, Ohio; Woodbury, Frank, Philadelphia, Pa.

(Y) Ybarra, A. M. Fernandez, New York, N. Y.